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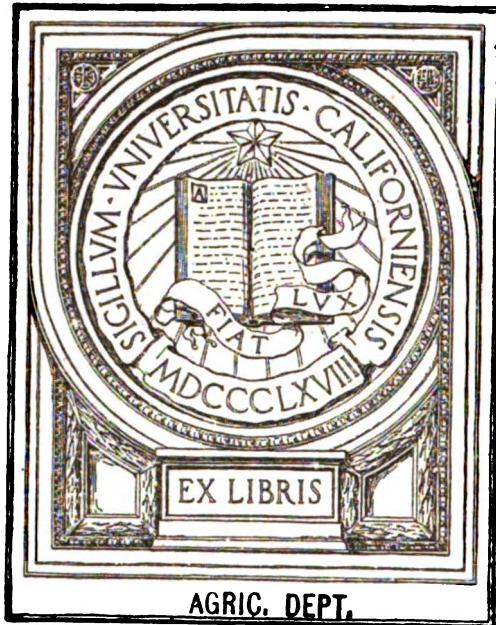
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Dadant's Foundation

Write at once. . . We will quote prices F. O. B. here or F. O. B. your station.

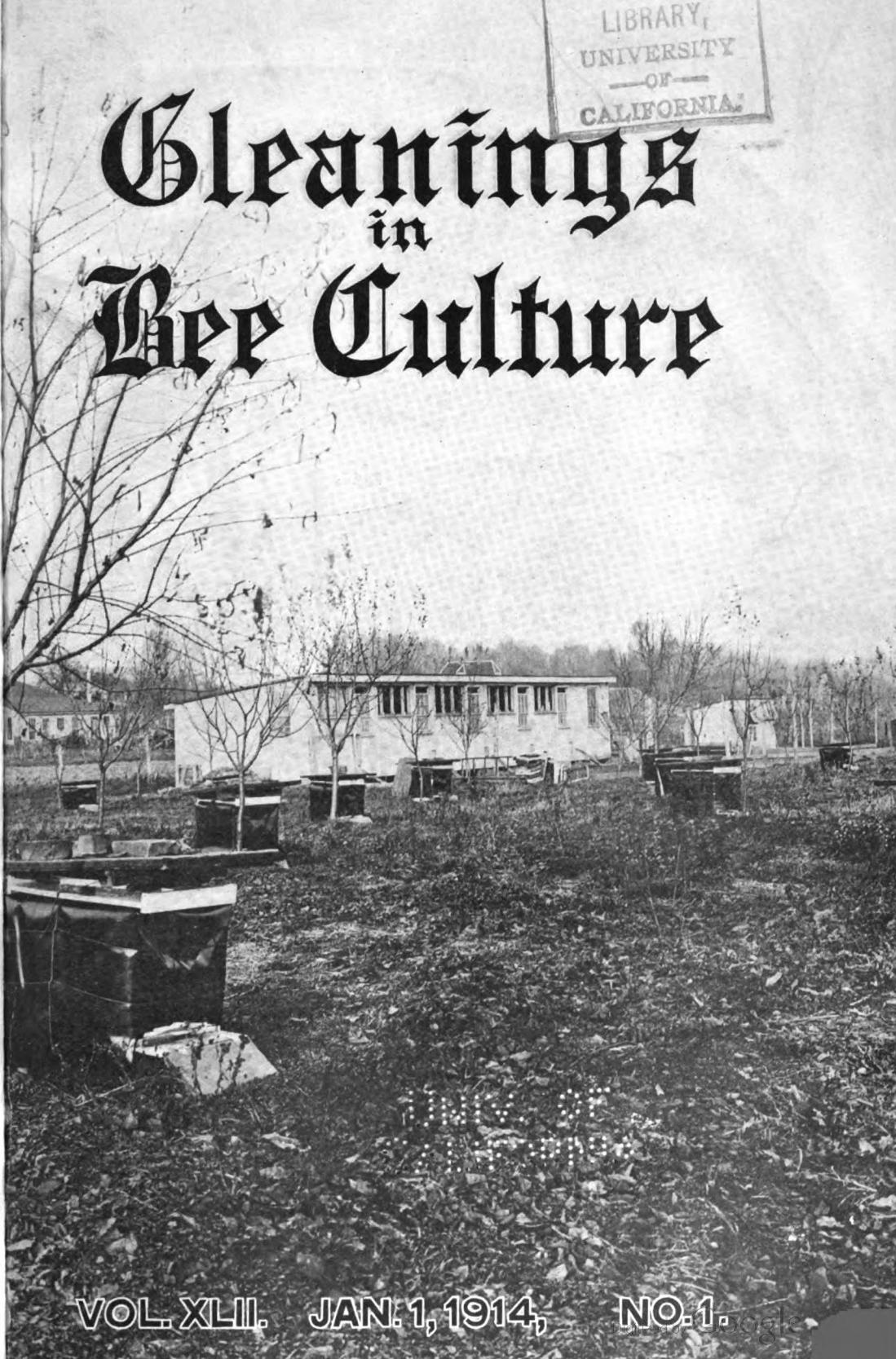
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Gleanings in bee culture



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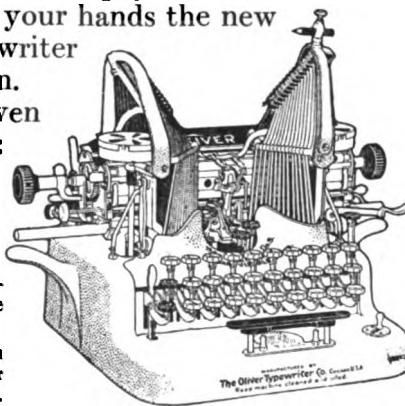
A few dollars, plus your promise to pay the balance at the rate of 17 cents a day, places in your hands the new "Printype" model Oliver Typewriter No. 5, our very finest production.

The best advice that can be given to the young man or woman is:

Get an Oliver Typewriter!

This offer places at your command a machine that turns time, energy, and enterprise into the pure gold of success.

Thousands of ambitious graduates, with the aid of Oliver Typewriters, have won their way to better pay and broader opportunity. This is the age of mechanical writing. The great world of modern business revolves around the typewriter. Typewriter operators are in demand everywhere. Our employment Bureaus in all the important cities are swamped with calls for competent Oliver operators.



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The Standard Visible Writer

Easy to Pay--17 Cents a Day

You can make the machine meet the payments. You doubtless spend more than this amount every day for trifles you do not need.

Thousands have paid for Oliver Typewriters on this plan without the slightest effort. Are you going to let a matter of pennies stand between you and this money-making machine?

Against *your* risk of a few dollars we ask a \$100 typewriter—the same machine that is used by the greatest firms and corporations throughout the world.

Shall we send you full details of the Easy Purchase Plan?

Catalog mailed on request. Address

The Oliver Typewriter Co., 116 Prospect Ave., Cleveland, O.

"Falcon" Bee Supplies. Every Thing for the Beekeeper

Take advantage of the early-order discount, send us your list of requirements, and we will quote you our very best factory prices and discounts.

Having recently constructed an eight-car-capacity kiln, and having enlarged our power plant, we shall be able to handle your orders to the best advantage.

"Falcon" Supplies speak for themselves. Don't delay your order, but take advantage of this opportunity and let us ship the goods at your convenience.

Send for our foundation samples and Red Catalog, postpaid.

W. T. Falconer Manufacturing Company, Falconer, New York
Where the good beehives come from

HONEY Bought Sold... Central Ohio Honey Market

Finest quality WHITE - CLOVER honey a specialty. Producers who have not yet sold their crop should write. Those who have disposed of their crop and are in need of more for their trade, I shall be glad to supply, at lowest prices consistent with highest quality and a fair margin of profit.

The correspondence of wholesale and retail dealers is especially solicited, as I am in position to furnish a grade of comb and extracted honey that will suit the most exacting trade. If interested, write for quotations and full description of the line.

Bee Supplies

Now is the best time to place your order for supplies for use next season. The prospect was never brighter, and there is every thing to gain and nothing to lose by ordering before the spring rush is on. Ask for revised price list and early-order discounts.

Root Quality and Peirce Service
from Ohio's Supply Center

E. W. Peirce, Zanesville, O.
Airdome Bldg., South Sixth St.

HOW FAR CAN A BEE SEE?

That question has been argued "time and again," but it doesn't worry me one-half so much as does another question—

How much can you see?

How many people there are to look,

and how few there are to see and to think!
The best realms for good seeing are in nature.

The Guide to Nature

tells you how. . . It teaches people to see the wonders and beauties of nature.

\$1.00 per year. 10c a single copy.

Edward F. Bigelow, Editor,

The Agassiz Association, Inc.

ARCADIA :

Sound Beach, Connecticut



EARLY-ORDER DISCOUNTS WILL

Pay You to Buy Bee Supplies Now

29 years' experience in making everything for the beekeeper. A large factory specially equipped for the purpose ensures goods of highest quality. . . . Write for our illustrated catalog and discounts today.

LEAHY MFG. CO., . . 95 Sixth St., . . Higginsville, Missouri

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HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsinged by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy white," "No. 1 dark," etc.

NEW HONEY-GRADING RULES ADOPTED BY THE COLORADO STATE BEEKEEPERS' ASSOCIATION,

DECEMBER 13, 1911.

FANCY WHITE.—Sections to be well filled, comb firmly attached to all sides and evenly capped, except the outside row next to the wood. Honey, combs, and cappings white, and not projecting beyond the wood; wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

NO. 1.—Sections to be well filled, combs firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey white or very light amber; combs and cappings from white to slightly off color. Combs not projecting beyond the wood; wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

CHOICE.—Sections to be well filled; combs firmly attached; not projecting beyond the wood, and entirely capped, except the outside row next to the wood. Honey, comb, and cappings from white to amber, but not dark; wood to be well cleaned; no section in this grade to weigh less than 12 ounces.

NO. 2.—This grade is composed of sections that are entirely capped, except row next to wood, weighing from ten to twelve ounces or more, and have not

more than 50 uncapped cells all together, which must be filled. Combs and cappings from white to amber in color, but not dark; wood to be well cleaned.

EXTRACTED HONEY.—Must be thoroughly ripened, weigh 12 pounds per gallon. It must be well strained, and packed in new cans. It is classed as white, light amber, and amber.

STRAINED HONEY.—This is honey obtained from combs by all other means except the centrifugal extractors, and is classed as white, light amber, amber, and dark; it must be thoroughly ripened and well strained. It may be put up in cans that previously have contained honey.

BOSTON.—We quote fancy and No. 1 white comb, 16 to 17; white extracted, 10 to 11. Beeswax, 30. There is an active demand for white comb honey. Boston, Mass., Dec. 20. **BLAKE-LEE CO.**

INDIANAPOLIS.—Honey is now moving freely. Fancy white comb is selling at 16 to 17; No. 1 white, one cent less; finest extracted, 9 to 10 cts. in square five-gallon cans. Beeswax is in good demand, and producers are being paid 32 cts. in cash or trade. Indianapolis, Dec. 20. **WALTER S. POUDER..**

CINCINNATI.—The market on honey is quiet, with quite a supply. No demand for off grades of comb honey. No. 1 white sells from \$3.50 to \$3.65; light 9. Beeswax is selling at \$35.00 per 100. The above amber honey in cans, 8 to 8½; white honey in cans, are our selling prices, not what we are paying. Cincinnati, O., Dec. 19. **C. H. W. WEBER & CO.**

DENVER.—Our local market is well supplied with honey, and our jobbing quotations are as follows: Strictly No. 1 white, per case of 24 sections, \$2.70; choice, \$2.57; No. 2, \$2.43; extracted white, 8 to 9 cts.; light amber, 7 to 7½. We are in the market for beeswax, and pay 30 cts. per lb. in cash, and 32 in trade, delivered here.

THE COLORADO HONEY-PRODUCERS' ASSOCIATION, Denver, Col., Dec. 20. **FRANK RAUCHFUSS, Mgr.**

CINCINNATI.—Fancy clover comb honey is selling for 16 cts., and white comb honey from \$3.50 to \$4.00 per case. Extracted honey is selling from 5½ to 7½ for amber, and from 7½ to 10 for white-clover extracted honey, according to quality and quantity. We are paying 32 cts. delivered here, for bright yellow beeswax.

THE FRED W. MUTH CO.
Cincinnati, Ohio, Dec. 16.

ZANESVILLE.—On account of the holiday season the demand for honey is somewhat more slack, though prices remain stationary. On comb, supply and demand are fairly well balanced; extracted is in rather light demand in comparison with offerings. Fancy white comb in small lots brings 19 to 20; No. 1, 18 to 19; best extracted in 60-lb. cans, 9½ to 11, according to quantity. Producers are paid for beeswax 30 cts. cash, 32 in trade.

Zanesville, Ohio, Dec. 22. **EDMUND W. PEIRCE.**

Honey reports continued on page 5.

We are in the Market for Both Extracted and Comb Honey

Would like to hear from those having Fancy and Number One Comb Honey. State best prices delivered Cincinnati. We want Extracted Honey, too. No lot too large or too small for us. We remit the very day shipment is received.

THE FRED W. MUTH CO.

204 WALNUT STREET

"The Busy Bee Men"

CINCINNATI, OHIO

P. S.—Ship us your old combs and let us render them for you. Our process extracts the last drop of wax from the slumgum. We make money for you if you will ship us your old combs and cappings for rendering. Write for full particulars.

SPECIAL DELIVERY

During this month we shall double our usual efforts in points of delivery and service. We carry nothing but the Root make, which insures the best quality of every thing. We sell at factory prices, thereby insuring a uniform rate to every one. The saving on transportation charges from Cincinnati to points south of us will mean quite an item to beekeepers in this territory. We are so located that we can make immediate shipment of any order the day it is received.

Honey and Wax

If you haven't made arrangements for the disposition of your honey and wax for this season consult us. We buy both in large quantities, and can assure you of fair and courteous treatment, and a good price for your crop.

Shipping Cases

To sell your crop to the best advantage it must be well put up in attractive style. We have shipping cases that answer every requirement of looks and utility. Small producers who sell their crops locally will be interested in the cartons in which comb honey is put up to sell to the fancy customers at top-notch prices. We have honey-cans too, in cases for those who produce extracted honey. In fact, there isn't any thing we don't have that the beekeeper needs, either to produce his crop or help to sell it.

Early-order discount this month is 4 per cent.

C. H. W. Weber & Co.

2146 Central Avenue

Cincinnati, Ohio

Gleanings in Bee Culture

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Editor Home Dept.H. H. ROOT
Asst EditorJ. T. CALVERT
Business Mgr.

Department Editors:—Dr. C. C. Miller, J. E. Crane, Louis H. Scholl, G. M. Doolittle, Wesley Foster, J. L. Byer, P. C. Chadwick.

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CHICAGO.—Prices on comb honey average about one cent per pound less than at this time in November. Just how much remains to be marketed is unknown. The probability is that sufficient quantities remain unsold to keep the markets well supplied. The extracted is not so firmly held, but prices have not receded much. Especially is this true of well-ripened white-clover or basswood in new cans, which bring 8 to 9 cts. per pound. Beeswax sells at 31 to 33, according to color and cleanliness upon arrival. Chicago, Dec. 16. R. A. BURNETT & CO.

NEW YORK.—The demand for comb honey has slackened off to some extent of late; and while there is a call for white honey, fancy in particular, lower grades, mixed and buckwheat, are practically at a standstill. Our stocks, however, are not large, and will be disposed of in the course of time. We quote fancy white at 16 cts.; No. 1 at 14 to 15; No. 2 white, 12 to 13; buckwheat and mixed, 10 to 11. The market on extracted honey is quiet also; and while the stock of domestic grades is not very large, new crop from the West Indies is arriving in large quantities, and prices have been gradually declining. We quote white clover at 8½ to 9; light amber, 7½ to 8; buckwheat, 7 to 7½; West Indian, 60 to 65 per gallon, according to quality. Beeswax is steady at 32 to 33.

New York, Dec. 18. HILDRETH & SEGELEN.

INCREASE Your SALES ... By a Liberal Distribution of Our Booklet ... THE USE OF HONEY IN COOKING

The 1913 edition is ready for distribution, and may be had in quantities at reasonable rates. The back cover page affords space for a display advertisement. As this booklet contains no advertising whatever, it can be employed with telling effect. Please order your supply early. Sample and price in quantities on application. Fifty-eight pages; one hundred and twenty-two valuable recipes in which honey is used. Just the book for every household. A two-cent stamp will bring a copy.

Address the Publishers

THE A. I. ROOT COMPANY, MEDINA, OHIO

IF YOU USE

bee supplies you should have our catalog.
We sell the best No. 25 jar made.
Heavy cartons that protect honey.

I. J. STRINGHAM, 105 PARK PLACE, NEW YORK
Astoria, Glen Cove, L. I.

The BEEKEEPERS' REVIEW

would like very much to enroll a goodly number of new subscribers for the year 1914. We are printing 400 extra sets of the REVIEW for the last half of 1913; and as long as they last they will be included free to all new paid-in-advance subscribers for 1914. All progressive beekeepers should subscribe for two or three good bee journals. We are making a special low price on the REVIEW when clubbed with other bee journals.

Here is a { GLEANINGS, one year, \$1.00 } Both, one year, for \$1.50.
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The Bank that pays 4%
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ASSETS OVER ONE MILLION DOLLARS

BEEKEEPERS, ATTENTION!

If you have any extracted or comb honey to offer, send us samples of quality; state quantities, and how packed. We pay the highest market price for the same. We are paying 8¢ cash for nice, bright, clean beeswax.

CHAS. ISRAEL & BROS., NEW YORK
486 Canal Street

The only Solution for Overstocking is OUT-APIARIES

Learn how to care for an out-apiary with the least amount of time and labor.

Our new edition of

"MANAGEMENT OF OUT-APIARIES" is ready for mailing. This is the new title of "A Year's Work in an Out-apiary," fully revised, and contains all of Mr. Doolittle's latest methods which he has employed this past season, securing an average yield per colony of 114½ lbs. Price 50 cts. postpaid. Order now of the publishers.

The A. I. Root Co., Medina, O.

Gleanings in Bee Culture

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A. L. BOYDEN, Advertising Manager.

Established 1873.

CIRCULATION 85,000.

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Preferred position, inside pages, 30 per cent additional.

Preferred position, inside cover, 50 per cent additional.

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No medical or objectionable advertising accepted.

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An Opportunity to Make an Independent Living from a small cultivated area in “The Land of Manatee” On the Gulf Coast of Southern Florida

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J. A. PRIDE

General Industrial Agent

SEABOARD AIR LINE RAILWAY

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Machines on Trial

Send for illustrated catalog and prices. Address

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ELECTRIC Steel Wheel Handy Wagons Are Big Money SAVERS!

No more high
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work and light-
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We also furnish
Electric Steel
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Know Before You Plant That Your Trees and Shrubs Will Bloom as You Expect

Shrewd people buy merchandise from established houses—houses that will be in business when they need service. Why should not a planter buy his Trees, Shrubs, Vines, Roses, Bulbs, and Seeds with the same precaution? How disappointing it is, when your trees or shrubs have leaved out, to find something you did not order—something you do not want. Have you ever had this experience? Don't take any risk when ordering. Buy direct of the producer and at first cost. We have a reputation at stake. Have been in business 60 years and expect to continue indefinitely. You always know where to find us. 46 greenhouses. 1200 acres.

192-page **FREE** Catalog Write for it today. It's interesting and valuable.



(78)

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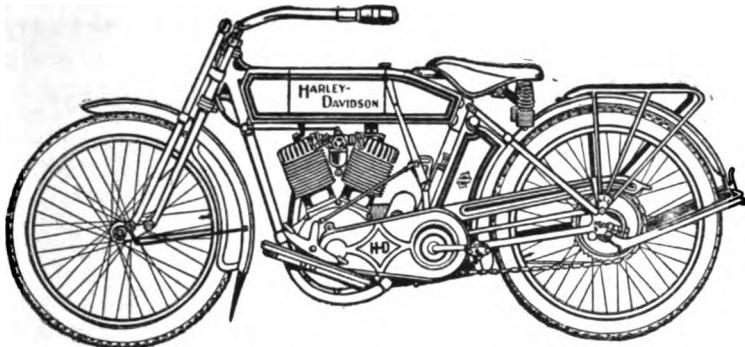
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For the third successive year the Ful-Floating Seat is standard. This patented device floats the weight of the rider between two concealed springs, assimilating all jars and vibration due to rough roads.

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The patented Harley-Davidson clutch can now be operated either by a foot lever on the left foot board or by a hand lever. The foot lever does away with the necessity of taking either hand off the handle bars, a great convenience when riding through sand or mud.

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The new Harley-Davidson Band Brake (patented) can be operated either by a foot lever or by back pedaling on either pedal.

Folding Foot Boards

All models are equipped with Folding Foot Boards in addition to the regular pedals.

We will gladly send you on request our complete 1914 catalog giving full details of these and forty other improvements

Harley-Davidson Motor Co., 865 A Street, Milwaukee, Wis.
Producers of High-Grade Motorcycles for More Than Twelve Years

"If goods are wanted quick, send to Pouder."

This Bee-supply House is Twenty-five Years Old This Month

This advertising business is an interesting subject, and I have given it hard study for just twenty-five years. An expert advertising man of this city, Mr. Carl D. Spencer, has this to say in one of his announcements: "In September I canvassed over two hundred homes and asked questions. I learned this: That practically everybody reads advertisements; that nearly everybody doubts the truth of advertisements generally; that most people do not separate the true from the false, but discount what is said in all or nearly all of them; that almost every one has been tricked into spending money through false or misleading advertisements. They blame the business man and not the magazines because false advertising is permitted, and every one desires a means by which she or he may recognize a truthful advertisement."

The above interested me greatly, and I have been trying for a solution as to how to have my advertising identified as the genuine article. I have never overrated my class of goods. In bee supplies I simply say that the goods which I handle are the Root make, and that speaks volumes. I receive hundreds of testimonials from those who have dealt here, and these same friends are recommending my goods to their neighbors. In shipping large orders of bee supplies, there is a declining scale of prices on quantity lots, and I save this for my patrons, often unexpectedly to them, but gratefully received as a rebate. Frequently neighbors club together and secure their supplies in one shipment, thus creating a saving in the aggregate cost as well as in transportation charges. I should like to place my catalog of supplies in your hands, which shows the new schedule of prices, and gives list of discounts offered for early orders. I also include with each catalog a letter which I should like to have you read.

Just now I am advertising finest extracted honey by parcel post. I am mailing tight-seal cans containing four quarts, two quarts, and one quart, and also paper honey-jars filled with granulated honey. With these paper honey-jars one can peel off the waxed paper and leave a beautiful cone of white granulated honey to serve on the table, and I assure you that this has never been equaled in any confection. This is strong language; but if you receive a sample you will admit that my advertisement is not overdrawn. I have mailed these goods to Chicago, Cincinnati, Louisville, and to many small towns, without a failure thus far. Perhaps some of you would like one of these packages mailed to some of your friends as a Christmas souvenir. Can you think of a nicer, sweeter token? If interested let me mail you my descriptive circular with price list. I will also include price list of honey to be shipped in larger quantities.

Walter S. Pouder, Indianapolis, Ind.

873 Massachusetts Avenue

Wintering Bees

This is the title of a newly revised book by E. R. Root, going into full details on

Construction of Double-walled Hives and in general How to Winter Bees Outdoors

It will save many times its cost in one winter. . Price 10c.

Published by

The A. I. Root Co., Medina, Ohio



Established 1885

We carry an up-to-date line of

Beekeepers' Supplies

Write for our 64-page catalog free, and for lowest prices on supplies. Full information given to all inquiries. We handle THE A. I. ROOT CO.'S goods, and make prompt shipments; freight facilities good. Let us hear from you. Beeswax taken in exchange for supplies or cash.

JOHN NEBEL & SON SUPPLY CO.
High Hill, Montgomery Co., Mo.

Special Sale of Honey

WE HAVE produced a fine lot of extracted honey this season from our eight out-yards. In addition to our own honey, we have purchased many other lots from prominent producers, and are now able to offer for prompt shipment the following flavors of extracted honey :

ALFALFA,	PALMETTO,
SWEET CLOVER,	ORANGE,
WHITE CLOVER,	LIGHT AMBER,
AISIKE CLOVER,	DARK AMBER,
BASSWOOD,	BUCKWHEAT.

We have some very fine lots of Ohio, Michigan, and Wisconsin WHITE-CLOVER COMB HONEY. For those who have not secured a good crop, and are wanting some fine lots for their trade, we can furnish them any desired quantity.

Write for our special prices.

The A. I. Root Company
Medina, Ohio

FRENCH'S

THE ORIGINAL POULTRY MUSTARD IN AMERICA

Write to us for information.
Booklet and circulars free.

THE R. T. FRENCH COMPANY, Mustard-Makers
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is the place all successful bee-men have their eyes on now. Proof is the way orders are streaming in here from all over the United States.

Root's Shipping Cases for Honey

We are well supplied with shipping cases for your comb honey, all sizes and styles. Don't put a nice crop of honey in old musty dirty cases. Get new ones, and get the top price for your crop. . NEW 60-POUND CANS, two in a case, a specialty. . FIRST-CLASS ALCOHOL-BARRELS, the best package for extracted honey. We prefer barrels to cans if we get them early. Let us know what you have to offer in both COMB and EXTRACTED HONEY. We are in the market for any quantity.

Send in your BEESWAX and turn it into money. Sections and foundation sent out the day the order is received. If you are short, send to us. Quick deliveries are our pride.

S. J. GRIGGS & CO., - 26 NORTH ERIC STREET, - TOLEDO, OHIO.
"Griggs is always on the job."

New Goods Arriving!

We are getting our stock for next season, and should be glad to have your order for any supplies you are to use next year. A folder, with new prices, will be mailed you on request. . .

The A. I. Root Co., Syracuse, N. Y.

Send for Our Prices on
BEE SWAX

We are paying higher prices than ever before at this season. WHY? Because of the tremendous demand for

Dadant's Foundation

Write at once. . . We will quote prices F. O. B. here or F. O. B. your station.

DADANT & SONS
HAMILTON, ILLINOIS,

Gleanings in Bee Culture

Published by The A. I. Root Co., Medina, O.

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NO. 1

Editorial

OUR cover picture for this issue shows the apiary and poultry-house of W. R. Bartlett, Elyria, Ohio, whose article appears on page 17.

WE hoped to give at least a brief report of the New York State convention in this issue; but at the last minute we found it would have to be left over till Jan. 15.

AN EXPLANATION.

SOME of our readers, after reading H. H. Root's article on imbedding wires in foundation, page 799, Nov. 15, got the idea that the wires in the frames are loose. They are not loose, but drawn taut in the frame in the ordinary way. When imbedding them in the foundation they are drawn out of alignment just enough to accomplish the result shown on page 802.

NO DEMAND FOR HONEY DURING THE HOLIDAY PERIOD.

As a general thing there is a slack time in the sale of honey during the holidays. The honey-salesman might just as well stay at home as to try to make sales during that time of the year. But he can begin again, perhaps, soon after Jan. 1. It is very necessary that he do so, because there is a large amount of honey yet to be sold before the 1914 crop comes on.

EDITOR OF "POULTRY LIFE" A BEEKEEPER.

THE breezy editor of that excellent poultry journal, *Poultry Life*, Mr. Miller Purvis, is a busy man and a bee-man too. We quote herewith the first part of one of his editorials in the October issue.

A PERSONAL WORD.

If any one thinks the editor of this magazine passes his days in elegant ease, wearing a tailor-made suit and a tall collar, it would be best to revise this mental picture. The editor of *Poultry Life* gets up in the morning and works all day about six days out of seven. Just at this writing he is finishing the task of digging three carloads of potatoes that he and one other raised this year. He also takes care of a rather sizeable flock of fowls, enough bees to make it interesting, and an orchard that is going to make him rich enough some day so that he can afford to throw his typewriter into an irrigation ditch, and

forget that he ever sat up nights spoiling white paper for the purpose of saying things to the public.

Here's long life and success to this fearless writer who is a poultry-man, fruit-man, and last, but not least, a bee-man as well.

A. I. ROOT ON THE SUBJECT OF WINTER NESTS.

IN this issue, page 6, our correspondent, Mr. Byer, believes that A. I. Root is not a supporter of the winter nest as advocated by his son in later years. He refers to page 863 of our issue for Nov. 1, where A. I. Root is mentioned as favoring combs of sealed stores of 15 lbs. each, placed in the center of the brood-nest. Apparently this might look as if he were in opposition to the practice advocated later in *GLEANINGS*; but if Mr. Byer will turn to the top of the next page, 864, he will see that A. I. R. recommended cutting circular holes in the combs near the top-bars for a passageway. This would also provide a winter nest, if we take into consideration the fact that A. I. R. has always been an advocate of putting the bees into winter quarters *early*. After all, if bees are given solid combs of stores early in the fall they will soon make a winter nest of the kind that we recommend in December when cold weather sets in.

THE IMPORTANCE OF UNIFORMITY IN MAKING MARKET QUOTATIONS.

OUR Colorado correspondent, Mr. Wesley Foster, on page 8 of this issue, calls attention to the lack of uniformity in the market quotations in the bee-journals. For instance, he says, "Some of the reports are from houses selling to retailers, some selling to wholesalers, and some, if not all, probably selling to both." He then goes on to give specific instances of how Cincinnati makes prices on honey going to retailers, and how Kansas City gives jobbing prices. If the producer does not know on what basis these quotations are made he is liable to be misled. We are addressing a circular letter to all those who quote prices, calling attention to this lack of uniformity, and asking if a more uniform scheme can not be adopted. In the mean time, it would be wise for any

beekeeper before he consigns his honey, to set up prices by mail, based on sample or samples.

PRICES ON HONEY EASING UP AS A RESULT OF SOME HEAVY LATE SHIPMENTS.

WE have time and time urged the importance of selling honey, especially that in the comb, *early*. The latter should be sold, as far as possible, in the large jobbing centers in September and October—certainly before the holidays. After that time it is liable to granulate or break down during shipment, and, what is worse than all, car-load shipments of comb honey after January 1 often have to meet markets already overloaded with the product. The situation this year is not as good as it might be. Numerous carloads of honey have lately been coming from the West, and in some cases have been dumped on to markets already congested. If these same shipments could have been delivered two or three months earlier, when consumers are calling for new comb honey, better prices would have been secured. Too many times producers have gotten the impression that, by holding off, prices will become firmer. In a very few instances (and very few they are) delays have been to the advantage of the beekeeper; but such delays are always exceedingly dangerous, and usually there will be a slump in prices along toward or shortly following the holidays. It is difficult to get them back again, because buyers, fearing that their comb honey will granulate on their hands, will begin to cut prices.

While the situation is not quite the same with extracted honey, yet the market on liquid honey will generally ease up along about January.

This past year has seen an unusual production of clover honey, both comb and extracted; and had it not been for the shortness of the California crop, prices would have been completely demoralized. As it is, delayed shipments of Western comb honey, and extracted also, are being dumped on the Eastern markets, when they are in no condition to receive them. It is impossible to maintain prices under such conditions.

Another thing that has eased the market somewhat this season is the open winter we have been having. Buyers invariably claim that honey sells much better during a snug cold winter, and there is a reason for this. Carbohydrates (fats and sugars) are heat-producing. During cold weather our systems crave sweets. Neither candy nor honey sells during mild winters as they do in cold, hence it is not surprising that there has been less of a natural craving and demand for honey this winter.

One heavy clover year is not likely to follow another; and the probabilities are that prices will equalize another season. In the mean time a lot of comb honey now on the markets may become granulated, and granulated comb honey, if sold at all, must go at a big sacrifice.

EUROPEAN FOUL BROOD NOT THE TERROR IT ONCE WAS; HOW IT IS ELIMINATING BLACK BEES.

WE have lately been in districts where this disease has held sway for a few years back. But the foul-brood inspectors tell us that it is not as difficult to handle as it was formerly supposed to be. In the first place, it has been clearly demonstrated that a vigorous strain of Italians will hold it in check, and often cure it. Some even go so far as to say that where this strain is used exclusively there need be no fear that the disease will make any headway, and probably never get even a start. There are numerous instances where Italians are free from this disease, notwithstanding other yards of black bees within flying distance are rotten with it. Indeed, it is becoming increasingly apparent that European foul brood will ultimately clean out the black race entirely. It has already done so in many sections.

Another thing, the Alexander treatment, or a modification of it, is coming to be more and more thought of for treating European foul brood. While it fails in some cases, it is very clear that the shaking treatment fails quite as often with the same disease. In this connection one will do well to read an article on it by E. F. Bender, in the last issue, who only voices opinions concerning this disease that are beginning to be accepted in many parts of the United States.

Taking every thing into consideration, the up-to-date, progressive, careful beekeeper need not fear European foul brood providing he keeps a vigorous strain of Italians, and is otherwise careful to avoid infection by buying indiscriminate lots of bees. Indeed, we have heard that in some sections European foul brood has been a blessing in disguise in that it has eliminated entirely the careless, haphazard beekeepers who have always been a thorn in the flesh of the man who makes beekeeping a business. It is this don't-read-the-papers class who dump their honey on the market in all shapes and at prices that are ridiculously low.

In this connection it should be clearly understood that European foul brood is very different from the American type of the disease. While combs can be saved, many times, when treating European foul brood, there is no substantial proof yet

advanced to show that they can be saved when affected with American foul brood. While a vigorous strain of Italians is more immune to this disease, yet unless one exercises due precaution American foul brood can cause fearful havoc among them.

On the other hand, it may be said that the shaking treatment, if care is exercised, is generally efficacious in treating American foul brood.

BROOD-REARING IN ONE OF OUR BEE-CELLARS.

ELSEWHERE in this issue (page 27) we refer to certain experiments in giving bees hard candy as a winter food. Our Mr. Pritchard, who is looking after our bees in the cellar, reports (Dec. 27) that in the upper cellar (under the machine-shop) the bees are breeding very heavily. The temperature stands at about 52. There will doubtless be considerable increase in the strength of the colonies in this cellar. There are very few dead bees on the cellar bottom. The bees are quiet, but brood-rearing is going on at a lively pace. This is probably due to the fact that the moderate weather before the bees were put into the cellar, and the candy feeding, as explained elsewhere, had started brood-rearing outdoors. The disturbance incident to putting the bees in the cellar, and supplying them with hard dry candy, has stirred them up still more, with the result that brood-rearing is going on as heavily as ever, even in the cellar. Queens are laying, even in the colonies having nothing but natural stores.

It will be remembered that we had one yard of bees that we put in the cellar a year ago last December that was in poor condition. The colonies were weak, and we put them inside, as we felt sure they would die if left outdoors. We supplied some of them with hard candy; but those with candy and those without began to breed. The bumping on the sled in moving had stirred them up, so that the bees were clustered all over the front of the hives when they were placed in the cellar. Naturally one would think this would spell disaster—that the bees would never quiet down again, and that the result would be dysentery and death. But these bees began to rear brood, and *kept it up all winter*; and when we took them out in the spring they were strong colonies instead of being two and three frame nuclei as when they went in.

Well, now the same process is going on this winter in the upper cellar, for we just overhauled the bees and found brood in all stages in all the colonies, and here it is just the close of December. Brood-rearing may be going on in the other cellar, but we have not yet investigated to find out. More anon.

BEES AND POULTRY; THE COMBINATION OF THE TWO VS. EITHER ONE ALONE.

IN this issue will be found considerable matter from beekeepers who are also poultry-keepers, discussing the combination of bees and chickens, and the poultry business as a sole means of livelihood. Some interesting evidence is produced, showing that the combination of bees and poultry goes well together. When the work is most active among chickens in the winter and early spring, the bees are dormant, requiring little or no attention; and when the work is most pressing among the bees, in the late spring, summer, and fall, the conditions are such that the chickens can to a large extent find their own feed—especially so if they can have the range of a yard or a farm.

One fact has been brought out; and that is, that the average farmer can raise eggs and chickens for market cheaper than the man who makes the business a specialty. When chickens are confined in yards they must be fed regularly balanced rations, and this feed costs money. On the other hand, when the hens have the run of the barnyard, or the whole farm, in fact, they can find their own feed. The bugs and insects, many of them injurious, are numerous enough in the ground to make up an important part of their diet. Under such conditions the poultry business will yield comparatively large returns. It is during the warm part of the year that bees require most attention.

We know of numbers of people who run a small farm in connection with bees. On this farm they have a large number of chickens and 200 colonies of bees, say. The whole combination, especially if not remote from a good market, will yield good returns.

Apparently, from the testimony given in this issue, keeping more chickens is not as profitable as keeping more bees. There are hundreds and hundreds of beekeepers who have anywhere from 300 to 500 colonies, and not a few who have as many as a thousand or more. The fact that these men have been in the business, are staying in it, shows they are making a living; and if we may judge by the comfortable homes, by the automobiles and other home conveniences that some of these large honey-producers have, the business of honey production on a large scale is more profitable than the exclusive business of producing eggs for market in a large way.

Mr. J. E. Hand, on the other hand, a type of the other kind, is not only a successful beekeeper but a successful poultryman. He is running a combination of the two, year in and year out. While he deals with only

the poultry side in this issue the readers of this journal know him best as a beekeeper.

There is another phase of this whole question; and that is, the average backlotter can usually keep a dozen good hens in a small yard. The scraps from the table, especially meat scraps and ground bone, will go a long way toward the maintenance of the flock. If they can have all the cuttings from the lawn-mower from the front yard, they will get along very well, providing they have with the table scraps mixed grain which they should always be able to get during the daylight hours.

A small number of chickens in the back yard will yield not only a fair return but afford a large amount of pleasure to the good woman of the house; and last, but not least, eggs that she *knows* are fresh.

The prices that eggs are bringing now in market, especially during the winter months, and the securing of winter eggs when no one else has them, should be carefully considered. Ordinarily that means early chickens—much earlier than the average man will have them.

FOUL-BROOD QUARANTINE IN IMPERIAL CO., CAL.

In the early part of last year, as noted in GLEANINGS at the time and later, the supervisors of Imperial Co., Cal., passed an ordinance prohibiting the shipment of bees into the county from other counties of the State or other States, without first giving notice of such shipment within 24 hours after their arrival. This ordinance in case of violation places a penalty of fine and imprisonment, not only on the representatives of the railroads, but on the shipper himself. It appears to go further, in that it gives the foul-brood inspector authority to prevent the landing of bees (whether diseased or not) in the county from districts where disease of any kind is *supposed* to exist.

On Sept. 11 the foul-brood inspector, Mr. A. F. Wagner, in the exercise of authority given him by this ordinance, declared a quarantine against the shipment of any bees into the county. See GLEANINGS, Oct. 1st, p. 665. The inspector has evidently had his troubles. Two wagonloads and one carload of bees have been shipped in, and Inspector Wagner ordered the bees to be shipped back immediately. The railroad company demurred, but finally took them and carried them out of the county. Suits and counter suits for damages have been threatened. Whether they have been carried into court or settled, we have not been informed.

In the last issue of the *Western Honey-bee*, published at Los Angeles, a full text of

the ordinance and quarantine is given. In an open letter to the Board of Supervisors of Imperial County, Mr. J. Edgar Ross, one of the most extensive beekeepers in the county, refers to this ordinance as "a gross injustice to the Imperial Valley immigrants." He says he has never brought bees into the county, and never expects to. Among other things he says:

The key to the entire situation is simple. A few extensive beekeepers now located in the valley wanted to put up a high board fence to keep others away from what they know to be a good thing. There might be some plausible excuse for this if the valley were, as they claim, already overstocked with bees. That this is not the case is abundantly proven by the rate at which nearly all beekeepers in the valley are increasing the number of their colonies. As a matter of cold fact, hundreds of tons of honey are going to waste in this valley for the simple reason that there are not enough bees to gather it. The interests of my pocketbook, as any one can plainly see, lies in silence, for I have bees for sale, and bees are worth three times as much here as they can be bought for on the coast; but I do not write my principles with a dollar-sign, and am decidedly opposed to this dog-in-the-manger policy.

Of course, GLEANINGS has taken no sides in this matter. Although we have been advised that trouble was brewing we thought best to say nothing about it, hoping that the case or cases would be settled out of court. We have received intimation that one case has been "settled," but on just what terms, and how, we are not as yet advised.

The situation, in a nutshell, resolves itself down to this: There is European and American foul brood in some counties of California. The beekeeping area in Imperial Co. is isolated inside of a desert; and under ordinary circumstances disease will not get into the valley unless shipped in with other bees. Its beekeepers, desiring to protect themselves from the importation of bees from infected counties into their county, apparently prevailed on the board of supervisors to pass the ordinance, which they did a year ago. But there seemed to be some dissatisfaction over the action of Inspector Wagner in enforcing the ordinance; that he was unfair in letting some in, and not others. As nearly as we can ascertain, some beekeepers and perhaps the majority in the county are in favor of the ordinance; but one of the most extensive ones among them, Mr. Ross, believes it is unjust and unfair, and he proceeds to pay his respects to Mr. Wagner (the inspector) and to his colleagues, in no uncertain language, in the *Western Honey-bee* for December.

Mr. P. C. Chadwick, in his department in this issue (see page 7) appears to feel that the ordinance will act as a boomerang on the beekeepers of Imperial Co. if the time ever comes when they desire to move bees into some other county.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

HAPPY New Year!

HEY! Mr. Editor, you nearly argued me into painting hives. After reading Doolittle, p. 842, I'll let 'em stay unpainted.

I CLAIM only part credit for the 266 sections per colony, 1913. Most of the work was done by a woman—a hustler—Miss Emma W. Wilson.

C. F. BENDER's article on European foul brood, p. 897, shows plainly he's been there. The most comforting item is that he has not seen a foul cell for three years, and yet he has kept his old combs.

L. S. EDISON, you ask, p. 864, whether to put frames of foundation in the center or side of the brood-chamber in April. You can do either; but the best place is to leave them in the shop till a month or two later.

A SPECIAL advantage of the motor-truck for out-apiaries is that your sympathies are not drawn upon as with horse flesh, when you want to hurry home without stopping to rest, or crowd two days driving into one.

LATELY a man told me that the bees in the middle of the cluster in his hives fanned lively to get up heat when too cold. Is that the orthodox belief? [That is certainly not the orthodox belief, and, what is more, we do not believe it is true.—ED.]

A. I. ROOT, after reading what you say, p. 911, I feel proud to say that, with a single exception, I have found the toilet rooms of all the public institutions in Washington scrupulously neat and clean. Moreover, lavatories are furnished with hot and cold water, soap, and individual paper towels, *entirely free*.

J. E. CRANE has my thanks for something I never saw before—a piece of comb with worker-cells on one side, five to the inch, and drone-cells on the other side, four cells measuring $1\frac{1}{2}$ inches. A plain case, with no bend in the septum. [This is quite a remarkable case. Has any one else seen any thing like it?—ED.]

YOU never can count on weather. At Medina you were caught Nov. 9 with hives 3 feet under snow. I was caught the other way. Nov. 11 I left home feeling that the bees were safe in the cellar; but immediately a warm spell turned up, such as never was known before, and I almost dread to learn what shape I'll find the bees in when I reach home Dec. 19.

IN *American Bee Journal* for 1861, 17 days is given as the time from the laying of

the egg to the emergence of the young queen. That was, I think, on the authority of Dzierzon and Berlepsch, and was, pretty surely, from rearing queens in not very strong nuclei. Later, 16 days was counted the time—3 days in the egg, 6 days feeding, and 7 days sealed up. I think those are the generally accepted figures to-day, and they are so given, *GLEANINGS*, p. 567. But Cowan, and later the A B C and X Y Z, reduced the days of feeding to 5, making the time from the egg to virgin 15. In order to learn something about it from the bees themselves I made some experiments, not with nuclei, but with a full force of bees. I got some positive results, although not very exact. In one case, instead of 9 days from the laying of the egg to sealing, it was not more than 7 days, 20 hours, 45 minutes, with a possibility of a good bit shorter time. (In the course of the years I have seen so many small larvæ in sealed cells that I am inclined to believe that cells are often sealed after four days of feeding or less. I suspect that the bees are not very particular about the time of sealing up; but at any time after an abundance of pap has been placed in the cell, whether the time be more or less, they say, "There, now, you little pig, you have more than you can cram down, and you may as well be sealed up now as any time.") In this case the full time from egg to virgin could not have been more than 4 hours over 15 days, with a possibility of being more than 4 hours under that time.

Aug. 5, 3:05 P. M., I gave a comb to my best queen, and after 2 hours gave it to queenless bees. Aug. 19 I put the 4 cells in a nursery. Aug. 20, at 1:05 P. M., no queen was out of its cell. At 3:05 one was out. At 5 no other was out, but another was out at 6:10. I did not look again till next morning at 5:15, when I found the remaining two were out. The longest possible time of that first queen was exactly 15 days, with a probability of 2 hours less, and a possibility of 4 hours less. The time of that second queen ranged from 55 minutes less than 15 days to 3 hours 5 minutes more than 15 days. The two remaining queens must have been at least a few minutes longer, but there's no telling how much longer.

Here's a chance for some of you ambitious youngsters to give us some more exact figures. Get your eggs laid within a shorter period than two hours, and then make more frequent observations than I did.

Notes from Canada

J. L. BYER, Mt. Joy, Ont.

I have just read with interest the plan of wintering given by A. I. Root many years ago, and referred to on page 863, Dec. 1, by L. M. Brown. While there must be some mistake in saying that the four combs the bees were to be wintered on must weigh about 15 pounds each, the fact, I see, is that A. I. R. seemingly did not place as much stress on the necessity of a "winter nest" as does a son of his at the present. If I am wrong in my understanding of the plan as given, please correct.

[See editorial in this issue.—ED.]

* * *

I understand that Dr. Miller has a crop for 1913 that averages over 260 sections per colony. Accept heartiest congratulations, doctor, for such a wonderful record. We thought that the crop was fair here in Ontario; but after that report we have come to the conclusion that we got only a taste of honey after all. However, there is no envy on the part of this scribbler; and to my mind such a crop means a combination of a wonderfully good honey-flow, wonderfully good bees, and last, but not least, *wonderfully good management*.

* * *

THE EFFECT OF THE WARM WEATHER.

"The mildest November on record" says the report of the observatory at Toronto in regard to the weather of Ontario during last month. No frost during the first week of December in our section; so this is another record. To-day, Dec. 8, it is colder, and we are having our first light fall of snow. How this continued mild fall weather will affect the bees is a question I have been asked frequently of late; and, frankly, I have no certain answer to give to the query. Most of the time it has not been warm enough for bees to fly much, and I am not fretting very much as to any bad results that may follow. At the Cashel apiary there may be an exception, as there the bees are surrounded on the north, east, and west by swamp; and during many of the November days a trip to the yard would show hundreds of bees sipping water from the bog, only a few feet from the bees. Bees carrying water freely generally means brood-rearing, and naturally I will watch with interest as to how these bees winter.

SNOW COVERING THE HIVES.

This matter of snow being left around the hives is a live question in all our northern locations where we are apt to get lots of the beautiful. Snow falling in "season" can pile up just as much as it likes, and I will leave it around or over the hives with no fear of bad results. But *my* hives all have quilts over the frames, and the outside cases have a space under the gable between packing and roof. If the bees had sealed covers on them instead of quilts I might have to be more careful of the snow; but I have no use for the sealed covers in our latitude, so the snow does not bother. As to falling in "season," I mean any time after the middle of December, and I want no deep snow over hives after late in March. That fall of snow you had in Medina was unseasonable, and I do not wonder that it threatened bad results if it had been left piled over the bees. After brood-rearing is well on in the spring it is very dangerous to allow hives to be covered any length of time, particularly if the old snow has been taken away and another fall of heavy wet snow should come and cover the hives to any great depth.

* * *

THAT WHITE HONEY IN ONTARIO.

See here, friend E. R., you are going to get into trouble for insinuating, p. 836, Dec. 1, that the water-white appearance of our clover honey is due to the admixture of thistle honey. I am told that thistle honey is very white; but I can give no positive proof personally, for the reason that I am not sure that I ever had any pure. While some sections that are poorly farmed may have enough thistles to make a slight showing in the surplus, such places are in the minority. In our home locations I think the editor could carry in a few armfuls all the thistles he could find in the alsike within reach of our bees, so you can see that thistles cut no figure in our case. Up at the Lovering yard there are more thistles; but the honey there is not as white as we get at home, owing to the presence of some other plants that do not grow in York Co.

By the way, I am informed that the editor took such a fancy to our Canadian honey that a policeman actually caught him with a bottle in his pocket—taken, presumably, from the honey exhibit we had at the big show. After an investigation he was let go on suspended sentence, owing to the nearness of the holiday season.

Beekeeping in California

P. C. CHADWICK, Redlands, Cal.

The *Western Honey Bee*, as edited by Mr. J. D. Bixby, is in keeping with the quality of work of the former editor, Mr. Geo. L. Emerson. Mr. Bixby will doubtless make himself fit into the position admirably, assuring the success of the journal, with proper support. There was no fault to find with Mr. Emerson, who, to the writer's personal knowledge, made a sacrifice in his own business to launch the journal successfully. Success to you, Bro. Bixby.

• • •

I quote the following from *Orchard and Farm*: "A carload of bees taken into Imperial County from San Diego County, in defiance of the quarantine on bees from that section, were ordered returned to the consignor." In the natural course of events there will be some beekeepers who will want to get out of Imperial County some day, and the task will be made no easier by the attitude they are now assuming. Self-protection gives every one a right to protect his own interests; and if these bees were diseased the action was right and proper. But the chances are they were not diseased or they would never have been shipped.

• • •

The year 1913 has closed, leaving a feeling of no particular regret to the beekeepers of California, especially those of the southern part of the State. It was a most disastrous season for the most of us. Some of the favored few in the orange district made a fair crop, but they were the exception and not the rule. In the alfalfa districts a fair to good crop was secured, the condition there being about normal. Disease has spread in some localities at a rapid rate, black brood (European foul brood) principally. This has added to the burden of some, as it has been a year in which fighting the disease has been very difficult, owing to the almost entire absence of fresh nectar. The rains have added a new hope to our future, so we hope and trust that the season of 1914 will bring new life and courage to our beemen, as well as financial gain. The writer wishes a prosperous new year to those who have stood by their bees, giving them all the attention consistent with their time and means.

• • •

So this is the "Bee and Poultry" issue. Well, I was never much of a "hen granny," and my success with chickens was never to

be bragged about. Once in my boyhood days I went out to set a hen on Friday. My mother told me I would have no success if I set her on that day of the week. Mother was not superstitious, but liked to have some fun with the boys once in a while. I went ahead and set the hen just the same. In about a week my mother came running down to the hen-house to see what was causing the commotion among the hens, and she arrived in time to see the last egg going after the hen that was set on Friday. She had a good laugh at my expense, saying, "I told you so." My answer was that a Leghorn hen did not have sense enough to sit, any way.

Let me tell you something of my wife's success with poultry, especially with turkeys on a city lot. There are many people who think a turkey must have at least 160 acres to run on. I once thought so; but Mrs. C. has proven to my satisfaction that I was mistaken. For the past three years she has kept a pair of these fowls for breeding purposes, allowing the hen to lay a full laying, then hatch and raise her own brood. This year she hatched 14, successfully raising ten of the brood, which is about as good results as one ever gets with turkeys. But she knows how to care for them, which is half the battle. Two or three days before time for the eggs to hatch, there is always a noticeable decrease in the amount of milk the family cow is furnishing the table. Oh, yes! clabber milk for the turkeys—no further arguments needed. The chief food they are given for several weeks is clabber cheese and green onion-tops cut fine and mixed with the clabber. My! how they grow if kept warm and dry! and the old mother hen knows how to do that.

But how about chickens? Mrs. Chadwick does well with them, but takes more interest in the turkeys. We keep only the White Plymouth Rocks, for the reason that we have an exceptionally fine laying strain of this breed, from which we get eggs the year round. There are other breeds of chickens that are good layers, but the objection with us has been to get a strain that not only lays well, but that is also of some value for the table. For a general all-round chicken, the breed and strain we have can not be excelled. Just the other day Mrs. C. sold three old hens for 20 cts. per pound, for which she received \$3.60. It is not so much the breed as the utility of the strain that is to be sought.

Beekeeping Among the Rockies

WESLEY FOSTER, Boulder, Col.

Wanted—a real good method of gathering sweet-clover seed. I fear the beemen are neglecting this plant when the seed is so valuable, and the bloom so fine for bees.

* * *

THE MARKET QUOTATIONS.

It has long been somewhat of a puzzle to me just how to interpret the honey quotations given in the bee journals. It seems they do not record very clearly the rise and fall of the honey market. This is easily explained by the different standards of grading used. For instance, a dark comb honey would sell for several cents a pound more in some markets than in others. Take the quotations given in GLEANINGS, Dec. 1, as an example. Some of the reports are from houses selling to retailers and some selling to wholesalers, and some, if not all, probably selling to both. Some of the jobbers sell to other jobbers who sell to wholesalers who sell to retailers who sell to consumers who eat the honey that the bees made!

The reports from Boston, Indianapolis, and Cincinnati are undoubtedly the quotations at which the honey is going to retailers. The Chicago report of Mr. Burnett shows conditions there very well. All sorts of prices have been asked and secured. Some consignment honey from the West having been sold very low, the market has been badly hurt. This price-cutting, I believe, has been done by houses that are not especially interested in building up the honey business.

The Kansas City report gives the jobbing price, the wholesale price ranging ten to twenty per cent higher than this. When I was in Kansas City the lowest price I was quoted on any No. 1 comb honey by the wholesale fruit-houses was \$3.35 a case; the highest I was quoted was \$3.75, which was about November 15. Kansas City was very heavily supplied with comb honey at that time, but it was moving out at a good rate.

The best price I see in all the quotations is 17 to 18 cents in a jobbing way at Zanesville, Ohio. The retailer must pay 20 to 21 cents wholesale for this honey, which is the highest I see in all the quotations.

Comb honey sells in Denver to the retailer at \$2.50 to \$3.00 a case of 24 sections, with some shading from this price where the bee-men sell direct to retailers.

The St. Louis report gives the conditions about as I found them when I was there late in November. Wholesale fruit and produce

men in Kansas City handle considerable honey, while in St. Louis they do not handle it to speak of at all, leaving the honey business for the wholesale butter, egg, and cheese dealers and wholesalers who have less perishable produce than fruit.

* * *

POULTRY-RAISING IN TOWN DOES NOT PAY.

The writer's experience with poultry has not been very satisfactory. There are several causes for this: First, I am not situated so that feed can be bought as cheaply as it should. During October and November the feed bill was \$15.65, with only about six dozen eggs to show for it. Our flock averages about 170 eggs per hen per year, which, I am told by Mr. Vaplon, poultryman for the Colorado Agricultural College, is above the average.

We have been unable to dispose of all the eggs throughout the year direct to consumers, as should be the case. If I were on a small farm where I could let the hens run, I believe a flock of about a hundred hens would take care of the grocery bill. I have averaged about \$1.50 a year profit per hen, not figuring any thing for labor. Figuring labor at 20 cents an hour, the poultry has faced a deficit of about \$75 per year. I believe the city or town man can not profitably keep poultry on the meat and egg basis if he buys feed at market prices, sells his eggs at market prices, and figures his time at even starvation wages. I will have the poultry-men of our Agricultural College back of me, I believe, in this statement.

The place where chickens pay is where they can pick up half or more of their living—where they can run. The commercial poultry-plants succeed through getting above the market prices for eggs and selling fancy stock at high prices. There are very few successful commercial poultry-plants in the West, for the reason that they can not compete with the farmer's supply of poultry and eggs which is produced so economically. When I move to a farm I want a nice flock of chickens for profit; but in town I want them only to furnish a few eggs and a chicken occasionally for the table.

I hope this is not too hard on poultry-keeping, but I believe it fairly defines the limits of the business.

Conversations with Doolittle

At Borodino, New York

THE BEST BEES.

" You have been telling us different things about breeding, etc., but you have told us little if any thing about which kind of bees are best suited for different kinds of work. What I want to know is whether all bees are alike suited for comb-honey production, extracted-honey production, or for the production of wax. If there is a difference, which are best suited for these different kinds of work? "

" I am well aware that volumes have been written on the subject of the best bees, each writer having his own ideas; but many do not have the matter fully settled in their own minds, even at the present time. Only recently one of our best apiarists told me that he was not fully persuaded that the Italians were better for any purpose than the blacks."

" But you do not think that there are many beekeepers who will agree that the blacks are as good as the Italians for any purpose? "

" There are two points in which the blacks excel, as I think is acknowledged by most of those who have experimented closely. The first is, they cap their section honey whiter than any others; second, they use more wax in doing such capping. And here you have an answer to working for the production of wax. It is doubtful, even at the present high prices of wax, whether it is as profitable to work for wax, under any circumstances, as it is for either comb or extracted honey; but if trying the experiment I would certainly choose black bees for such a test. At times of a good honey-flow, with little room for comb-building, these bees will plaster things over all about the hive with little bunches of wax, something similar to the way in which Caucasians will plaster up the entrance to their hives with a mixture of pollen and propolis."

" But how about extracted and comb honey production? "

" If I were producing comb honey altogether, I would procure a good queen of the golden variety, rearing all queens from her, and allow them to mate with any drones they might chance to meet, the most of which, without doubt, would be from an entirely different blood from themselves, which would give a direct cross. Such direct cross always gives the greatest vigor; and in reference to your question as regards the best bees for comb honey I should not

care one cent whether the young queens from such a mother mated with drones from black or hybrid stock, as all my experience goes to prove that thoroughbred golden Italian queens, mated to drones from either black or hybrid mothers, give bees equal to the very best for comb-honey production. But if I could conveniently hinder such mating I should prefer not to have these queens meet drones from young queens reared from imported mothers."

" How is that? Do not many of our best beekeepers claim that queens from imported stock give the very best honey-gatherers? "

" Yes, and undoubtedly such claim is absolutely true. It is not because they would not give bees just as vigorous and of just as good honey-gathering qualities; but for the reason that, as a rule, workers having such imported blood in them do not cap their honey nearly so nice and captivating to the eye as do those having more of the golden, hybrid, or German blood in their veins. There is no one thing that helps to dispose of a crop of section honey to so good advantage, nor so promptly, as do the nice white and smooth cappings of the combs. Have you never noticed that all fancy honey quotations are based on the looks of the cappings to the combs, and that honey quality takes second place in this matter? "

" That is right, now I come to think the matter over. But are not such bees as we have just been talking about the best for extracted honey also? "

" Well, hardly. They may gather just as much honey, but they use more of that honey in secreting wax, and wax production plays no important point in the production of extracted honey. Dark or leather-colored Italians, those nearly related to imported stock, often cap their honey with so thin a covering of wax, and that thin covering placed so close that it touches the honey, causing section honey to have such a greasy, watery appearance that it takes a grade much below fancy in the market, even with the same good quality as fancy in the combs. Now, while this is all against comb-honey production, it is in favor of extracted honey, for nice capping to the combs is never thought of in an apiary devoted to extracted honey; hence the less honey that is consumed for the secretion of wax, the greater yield of the extracted article. For this reason, were I working exclusively for extracted honey I would select the darker Italians,

Continued on page 34.

General Correspondence

COMMERCIAL EGG PRODUCTION

A Resume of the Business from the Question of Building to the Hatching and Feeding of the Chicks

BY J. E. HAND

From the dollar-and-cent point of view it is, perhaps, advisable for the expert beekeeper to concentrate his capital and energies upon his chosen profession. There are conditions in human existence, however, that are infinitely more desirable than the mere making of money. "Variety is the spice of life;" and the human mind becomes broadened and invigorated by branching out upon different lines of thought and action.

Beekeeping is not a year-around occupation, hence a beekeeper on even a quite extensive scale may relax the tension upon his mind, broaden his views, and increase his finances, by branching out and taking on a side-line winter occupation. Among all rural industries, perhaps none is so well suited for this purpose as commercial egg production, since it is largely a winter occupation, though virtually an all-the-year avocation. While poultry-keeping alone is by no means the money-making bonanza or the highway to wealth that it is too often painted, yet with intelligent management it will give good returns for the capital and labor expended, including a reasonable profit. And you don't have to wait six months or a year for it; for after the plant is in operation, with proper care and attention to every detail commercial egg production will yield a daily and hourly income, rain or shine, summer and winter, with no off seasons.

You carry out the feed in the morning and bring in a basket of eggs at night to pay for it, including a profit commensurate with the investment, providing you attend strictly to every detail of your occupation. Born and reared on a farm, and familiar with every branch of rural husbandry, I know of no line where more skill is required, or where a little neglect is so quickly felt in the profits returned as in the poultry business; nor do I know of any that will yield as prompt returns for extra care. Let no one who may read this article delude himself with the idea that he can, without any previous experience or knowledge of the business, step into a profit-yielding business of commercial egg production on an extensive scale—a business where vastly more science and skill is required than in the production of fancy section honey and the control of swarming.

A beginner should start with 50 to 100 pullets, and increase his stock in proportion to his experience and ability. I emphasize these points because it is the purpose of this article to help beginners instead of leading them astray by painting the situation in roseate hues to foster hopes and ambitions that can be realized only upon the conditions herein mentioned. This does not necessarily imply a constant grind of ceaseless toil and arduous labor, but it does demand a constant supervision and strict attention to the most minute details of the business.

The first thing to be considered is the location and buildings. It is very desirable to have the ground sufficiently undulating to admit of ample surface drainage. A side hill sloping south has advantages along this line. If in an orchard, all the better for the poultry as well as for the trees, for the hens will scratch the ground and pick up innumerable injurious worms and insects, and in return for the favor the trees will provide protection for the fowls in winter and refreshing shade in summer, all of which are important factors. While the buildings need not be expensive, it is imperative that they conform to sanitary rules, as well as to conditions that favor winter egg production; for pure air and cleanliness means health to the fowls, and the healthy hen is the one to lay eggs in winter, when they bring the highest price, and we should assist her by imitating nature and making conditions as near normal as possible.

While we do not claim that the system herein outlined is superior to all others, we feel justified in recommending it in preference to any other for two reasons. First, it has been uniformly successful with us, and we are not sure that other methods would be. Second, it is practically the same system that is practiced by the leading poultry-men of the country, therefore we don't feel justified in confusing the beginner with a multitude of systems and innumerable visionary theories. So please don't consider it egotism that leads us to outline one particular system instead of branching out upon unexplored territory.

It is advisable to have the laying-houses in a continuous row, extending in a line east and west, and fronting south. This is imperative, since the warm and penetrating rays of the sun reflected through the windows dispel the gloom of an otherwise dull monotony, and bring happiness and content to the inmates, even in zero weather, as will be attested by their scratching and singing, likewise by a better filling of the egg-basket.

It should be not less than 16 ft. wide, and of sufficient length to house the number of hens desired, for no one has as yet placed a limit to the number that can be successfully operated in one continuous room unbroken by partitions. So long as correct sanitary conditions are rigidly maintained it is safe to assume that 1000 hens in one flock will give as good results as a flock of 100; and the minimizing of labor in caring for large flocks is an important item that swells the poultry-man's profits.

The building is sheeted outside, roof included, with matched lumber, and covered, except the front, with felt roofing, and treated to a coat of roofing tar; if tarred every two or three years the roof will last indefinitely. The inside, except the front, is ceiled with plaster-board, for which studs and rafters are correctly spaced. The rafters are 2 x 8 material to support the roof, without props. The floor is double boarded with light roofing felt between. The lower may be of cheap rough lumber; but the upper floor is a medium grade of matched flooring, thus making the room warm, and precluding the possibility of a draft of cold air to endanger the health of the inmates.

In the front, at intervals of 8 ft., is a single-sash window of 10 x 14 glass, sliding upward between studs, and protected inside by wire netting stapled to studs. At equal distances, between each pair of windows, is a door hung in two pieces to swing outward. The lower half is 32 x 42 inches, and the upper half 32 x 36 inches. Hinged at the top, swinging inward and upward, and hooked to the ceiling, is a netting-covered frame of equal dimensions with the upper door, so that, when it is opened, the screen is swung into position, preventing the exit of the inmates and admitting of ventilation by day. These doors are opened every morning, and closed at night during winter, regardless of weather conditions. As a further means of ventilation by night and day is an opening six inches wide next to the roof in front, and extending the whole length of the building. It is covered with burlap, and, being so high, changes the air without creating a draft over the heads of fowls at night, or forming any accumulation of frost or moisture on the ceiling. The floor is at least two feet from the ground, and well ventilated underneath to guard against moisture in the scratching-litter, and three feet would not be too much, as this is an important factor in sanitation; for moisture here means filth, which breeds disease.

During cold winter weather a light frame covered with muslin is tacked on to the upper door-screens, thus combining light and warmth with suitable ventilation. Next

to the north wall, and extending the whole length of the building, is the droppings-board, of a width to accommodate three lines of perches. These are in ten-foot sections, 16 in. above the droppings-board, and swing back against the ceiling. Under the droppings-board are the nests open to the hens from beneath and behind, and operating like the drawers of a work-bench. At intervals of 20 ft., intersecting the perches, is a short partition of equal width, extending from the droppings-board to the ceiling. This prevents the action of currents of air that would otherwise pass over the heads of the fowls at night with undesirable results. It will be noticed that the floor is free from encumbrance, and is virtually a mammoth scratching-room provided with perches and nests.

Impure air and filth breed disease; and a sick hen is neither a laying nor a paying hen; hence droppings should be removed daily, and dry fine sand sprinkled over the board. If kept dry the droppings are worth more per ton than the ordinary brands of commercial fertilizers.

STOCKING THE PLANT.

Next comes the stocking-up with early-hatched pullets, for these are the glory of the poultryman, and the winter egg-makers. This is the most complex problem of all, since it involves the rearing of hundreds of chicks by correct methods—methods that will produce strong healthy chicks; for a pullet with a weak constitution is an undesirable proposition. It is advisable to secure a sufficient number of yearling or two-year-old breeders of known health, vigor, and utility as egg-makers. This is imperative, for like produces like. Incubators were a success with us from the start, but it cost us dearly in dead chicks, wasted time, and money invested in artificial chick-killers under the cognomen of brooders. As *killers* they were all a howling success, and we carried the dead ones out by fives, by tens, by fifties, and by hundreds. "Experience is a good school, but the tuition is rather high" (Billings), for it cost us dearly to learn that the best brooder on earth is a gentle Wyandotte hen. She is well equipped with soft fluffy plumage, and will mother any thing from a jack-rabbit to a bull pup, and do it scientifically. We owned one that brooded four collie puppies until six weeks old. How is that for a brooder?

In practicing artificial methods with bees or poultry, our success will be conditional upon operating along lines that harmonize with the nature, habits, and instinct of the individual with whom we have to deal. While it is perfectly natural for full-grown fowls to congregate in large flocks, right the re-

verse is true in nature's method of rearing chicks. Instinct unerringly guides the acts of the prospective mother-hen in hiding her nest, and isolating her downy brood so long as they remain under her control. This is nature's method of rearing strong, vigorous, healthy chicks. While we may not improve upon her methods, we can imitate them so closely as to secure equally good results. Hence at the time of starting the incubators we secure a sufficient number of broody hens to mother the prospective hatch, and stock each nest with tested infertile eggs, treating each hen with louse powder twice, and anointing their heads with head-louse ointment before the chicks appear, otherwise the treatment will kill them also.

If chicks become chilled or overheated in an incubator after hatching they will dwindle and die in spite of the good offices of the mother-hen; therefore we must be on the spot when the hatch is due, and, when over, the door is propped open to allow sufficient change of air to prevent panting with open mouths, and not enough to cause the chicks to pile up for warmth. When conditions are right they will be spread evenly over the tray, sleeping quietly. I emphasize this point because a mistake or a little carelessness here will render all our labor and effort of no avail, since a chilled or scalded chick had better be dead so far as ultimate results are concerned. As fast as they get strong on their legs, place them under the hens at night, giving to each hen 35 chicks, making sure the hens are on a flat surface, otherwise the chicks will fall out and become chilled. The last batch removed will be the weaker of the hatch, and should be given to a gentle mother.

When three days old, begin feeding commercial chick-feed, soaking it in water for 20 minutes, and spreading it on a clean board. Feed sparingly four or five times a day for the first week on wet feed, giving no water nor grit. Begin feeding dry chick-feed and drinking-water the second week, but no grit until two weeks old, and then sparingly. The gizzard of a young chick is a very small organ; and if given access to fine sharp grit, chicks will fill their gizzards with it to the exclusion of life-sustaining food, and literally starve to death in the midst of plenty. The ignorant attendant, thinking to cure an imaginary distemper, dopes them with more grit and shells, with fatal results. When three weeks old the colony houses are isolated, and the chicks given a grass run, or fresh-grown oats, with chick-feed or cracked corn and wheat morning and night, having access also at all times to hoppers full of dry-mash food the same as given to laying hens. If these in-

structions are observed the result will be strong healthy chicks.

The chicks are hatched during April and May, and the colony houses should be of a size to accommodate the hen and her brood until they are full grown. Some of the pullets will begin laying in September, but should not be pushed for egg production until about November 1, when they are to be assembled within the winter laying-house, and not permitted to step outside until their year of egg production is completed and they are taken to market.

FEEDING FOR HIGH-PRESSURE EGG PRODUCTION

This is the most interesting stage of the program, and the enthusiastic attendant watches the rapid development of his pets and the reddening of their beautifully curved combs with bright anticipations of future success in the form of heaping baskets of beautiful eggs of snowy whiteness; and if he performs his part faithfully and intelligently his hopes will soon be realized. Next to the rearing of the chicks, this is undoubtedly the most critical part of the poultryman's experience; for the success of the whole venture depends upon the correct feeding of a scientifically balanced ration. A mistake here will result in a waste of expensive food material and a proportionate decrease in profits. Every feed contains a certain amount of necessary moisture varying from 8 to 90 per cent of its weight; hence the wisdom of supplying so-called dry-mash foods unmixed with water.

Since the hopper system of dry-mash feeding has been uniformly successful, and has economized labor to the extent of multiplying the number of hens that can be cared for by one man, and in one flock, it is not worth while to consider any other; and the subject of greatest importance is, how to compound the mash feed correctly. Space forbids a discussion of the composition of feed stuff and the nutrient value of different rations. Suffice it to say, it has been determined by carefully conducted experiments that the following ratio of mixing feed is second to none as an economical egg-making mash food: 100 lbs. corn meal, 100 lbs. ground oats, 100 lbs. gluten meal, 100 lbs. middlings, 300 lbs. bran, 100 lbs. beef scrap, 100 lbs. alfalfa meal. This compound should be kept constantly before the fowls in hoppers, while the morning and noon ration consists of a light feed of scratching material of mixed grains consisting of cracked corn, wheat, buckwheat, and millet. This is scattered in straw six inches deep, and the hens are literally compelled to scratch for every kernel of grain they get. At 4 o'clock P. M. they are given all the corn and wheat they will pick up in 20 min-



Apiary of J. H. Warner & Son, Middleburgh, N. Y.

utes, which causes more singing and scratching, and the hens will go to roost with a full crop, which is very desirable, because this is the proper time for the digestion of a grain ration, since it maintains a healthy action of the digestive organs during the night, keeping the blood warm and the fowl comfortable.

Economical feeding depends upon the amount of food digested rather than on the amount consumed, hence green vegetable food must be liberally supplied, preferably in the form of mangolds, cabbage, and fine-cut clover. Granulated charcoal, granulated bone, grit, and oyster-shells should also be

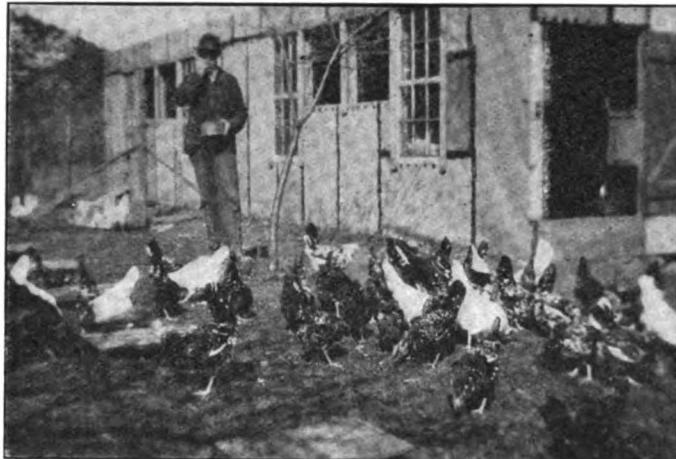
be tempered with hot water during extremely cold weather.

FEED-HOPPERS.

Manifold are the hoppers that do not hop, and legion is the name for those that hop so fast that an industrious hen will ingeniously hook the contents out upon the floor with her beak in search of choice bits that are always found in dry-mash feed; hence such feeds should be ground exceedingly fine. We overcame this waste of feed material by using a hopper that does not hop, but always remains wide open, and defies the most energetic hen to waste a morsel of its contents. Here it is: Make a



Warner's poultry and bee yard combined. The chickens have the run of the apiary, helping to keep the grass down.



One of J. H. Warner & Son's two poultry-houses accommodating 250 hens each.

light box with open top 30 inches square, 6 inches deep, mounted on legs 12 inches long; a loose-fitting frame, covered with inch-mesh netting, acts as a follower as long as the feed lasts, and the biddies soon become disgusted with hooking beak and toenails upon intervening wires in a vain attempt to explore its contents.

CHOOSING THE BREED.

We would not select a Percheron horse for a trotter, and for the same reason we should not select any of the general-utility breeds for exclusive egg production. While single individuals of these breeds may equal the best Leghorns as egg-producers, the fact remains that the Leghorns stand pre-eminent among all breeds as walking egg-machines; hence the name "Leghorn" is a synonym of efficiency and utility in egg-production. The white variety is conspicuous on account of her queenly form and graceful carriage, as well as her beautifully drooping crimson comb and the exceedingly large size of her snow-white eggs. Undoubtedly the Leghorn as a breed will stand high-pressure feeding for commercial egg production better than any other.

Birmingham, Ohio.

BEES AND POULTRY IN THE YEARS GONE BY

BY L. G. CARY
Poultry Judge

This subject will bring out some good articles, no doubt, written by those capable of writing interesting articles; but as for myself, I have had experience that, if I had talent to relate in an interesting and proper manner, I might have an article worth reading. However, it is plain talk that we like

to have, and facts that will do us some good.

I have been a poultry lover all my life, and can not remember the time I did not have my few thoroughbred birds. When a boy of eight years I owned some grand pit games and raised them for an uncle of mine who was a great fancier, and paid some fancy prices for them. He kept me in stock, and I certainly spent many a happy hour with my favorite birds. I almost lived with them, when I had time from running errands for my mother

or helping my father around the farm. Boys began helping earlier those days than they do now, it seems to me.

At the age of forty I can look back to those days of my childhood and readily understand why it is that I can not help raising poultry, and, furthermore, why I am interested in the production of thoroughbred birds. It seems to me I am a bigger crank than ever about all kinds of poultry. I will say that I have found my poultry work very pleasant, and, of course, interesting and also profitable.

I also remember back in those barefoot days, when I was taking my first lessons in poultry culture my father, who was very fond of honey (I might as well include myself in this fondness for honey) got the notion that he would raise some bees. At that time we knew little of the Italians or any particular breed of bees. We just thought bees were bees, and that was all there was to it, and that any kind of box was a hive. I do not remember where he got his first start, but I think he bought them at a sale. Anyhow, we had some bees, and in the spring more bees, as they swarmed often.

How well I remember what a turmoil there was on the little farm when the bees swarmed! My father and I out in the corn-field were startled to hear the dinner-bell begin to ring about nine in the morning; but we had no more than started for the house when we were assured that no greater calamity had happened than the bees swarming, as we could hear the din and rattle that mother and the other children were making to get the bees to settle. We thought if we would beat on tin pans and make a furious

noise of some kind it would cause the bees to settle.

The bee business did not pay big results. If we got enough honey for the table we thought we were doing well; for whenever we took honey we had to kill the bees with sulphur.

Poultry was not a very paying item of the farm then, as the birds were left to roost in the trees and in the wagonshed, on the fences—in fact, about wherever they took a notion to stop. Their feed consisted of whatever they could steal from the horses, hogs, or sheep. When very cold weather came, and a continued cold spell with snow for several weeks, my mother would issue orders that the chickens that were roosting out be caught and put in the hen-house; so when dusk came we began gathering them in. They were wild, and such a lot of squawking and squalling as we carried them to the hen-house and dumped them in at the door! They would keep right on squalling after we threw them in the house. It is not much wonder that we did not get eggs in the winter. When the warmer days of spring came, and the hens began to lay a few eggs, you may depend upon it we did not get any eggs to eat, for they had to go to the store to help buy our groceries; and from that time until cold weather again those abused and neglected hens would buy the most of the groceries for the table. In those days if the hens began to lay, then they would get better care; but when they shut off in laying, then the feed was stopped. Now we know better than that. We must give our poultry good care at all times; for when moulting time comes, and the egg supply slacks off, we must feed well to hurry through the moult so that, without loss of time, the hens will go to laying again.

What great improvements we have seen with bees as well as poultry! Then it would have seemed beyond reason to say that one swarm of bees would yield honey to the amount of 75 or 100 pounds during one season. It would likewise have seemed incredible to say that one hen would produce 200 eggs per year. All this has come to pass, and hens have been tested and known to lay more than 250 eggs per year. These hens are thoroughbred stock too. It does not pay to raise any other.

Bees have been improved, and the hives have been improved, until it is a science to raise and care for bees intelligently. The old box hive has given way to the new frame hive, and the few unprofitable swarms to the prosperous and paying apiary where pleasure, interest, and profit go hand in hand. Likewise the old log hen-house, with its mongrels, has given way to the well-ar-

ranged poultry-house with its number of thoroughbred birds, eggs in winter—profitable the year round. In the days of boyhood we got ten cents per dozen (often less) for eggs. Now we are selling fresh eggs at forty cents per dozen.

Bees and poultry go well together, and the successful poultry-breeder is very likely to be a successful beekeeper because he must be a person who looks into the details of his occupation and never tires of doing the little things that must be looked after to make success in both. A poultry-farm and bee-raising make a combination that, if looked after intelligently, and details and care given to every part, afford pleasure, health, and prosperity. A good location for poultry is a good location for bees; and one who loves the work of poultry-raising will find bees as interesting, if not more, and very profitable as well.

Trimble, Ohio.

POULTRY-RAISING AS A SIDE LINE WITH BEEKEEPING

BY ROSCOE F. WIXSON

It seems to be a noticeable fact that a number of prominent beekeepers in different parts of the country have adopted poultry as a valuable side issue to their business. On the other hand, there are a few who rely almost entirely upon the poultry as a means of livelihood, making the bee business wholly secondary, or not attempting to bother with it at all. In this section of the State the popular impression is that considerable ought to be made from chickens and comparatively nothing from bees.

I agree with the late E. W. Alexander, who said, "If you want a larger income, just add on one or two hundred more colonies." But in my case, with only a few colonies of bees and not many years' experience, I find it impracticable to increase too fast; and, accordingly, the fall and winter months leave me almost nothing to do with the bees. For several years I have kept a number of chickens, not only to take up the time but also as a means of profit.

The accompanying view of my home yard of bees shows also the two poultry-houses which stand a little to the left of the picture. The hives and the two houses are so closely placed together that it is a very easy matter to attend to the wants of each without going out of my way.

The White Leghorn seems to me the best all-around hen for steady egg production. In order to keep the stock up to perfection, I introduce pure stock every year. Some time ago I found that a hen kept the third



Apiary and poultry-house of Roscoe F. Wixson, conveniently located close together.

winter does not lay as well as a pullet or a year-old hen. Without the use of leg-bands I often had trouble in telling the older fowls. The hens are now so banded that no fowl is kept for the third winter. The bands are arranged in two sets of numbers, the bands on the pullets being all No. 1, while the year-olds are numbered 2. When the yearlings arrive at the two-year mark they are sold, and the bands changed to the pullets of that year's raising. The selling generally comes along in October, so they are somewhat over two years old when sold.

For feeding I follow the balanced ration given out by the experts at Cornell University. They consider 60 pounds of wheat, 60 pounds of corn, 30 pounds of oats, and 30 pounds of buckwheat mixed together an ideal feed for winter use. During the late fall and winter, ground bone and meat can be obtained at the markets. This food will induce hens to lay when all others fail. At this writing, November 28, it is impossible to procure the ground bone, so I am feeding meat scraps with good results.

In looking over the books for 1913 up to the present time, I find that the total number of eggs sold from 23 hens is 2495. In this amount no attention has been paid to the number used in the household during the year for cooking. The hens still have yet a month left to their credit before the year is up. At the present, the average yield per day amounts to about 9. Therefore for December they would have at least 270 more, which would bring a total of

2765, or an average of 120 eggs per hen for the year. If the total number used for cooking were known, quite a good showing could be made.

By also referring to the books, results show that the hens up to the present time have paid me a profit of 95 cents each. This does not take into consideration the value of 17 pullets, although the cost of raising them has been charged to the hens.

Ever since the spring of 1905 I have been interested in bees. Last season gave me some experience, and also a fair crop of honey from thirty colonies of bees, spring count. In the Aug. 1st issue, page 525, I told some of my experiences in regard to beekeeping, so I will give only a brief report of last season. The total number of sections of honey produced amounted to 1397. In addition to this I obtained about 500 pounds of extracted honey. On account of a number of colonies being reinfected with foul brood in the spring, there was an increase of only 11 colonies. When the season commenced, it never occurred to me that an extractor is a necessity in every bee-yard, especially when one increases by artificial methods. By July 1 I realized the great importance of a machine, and ordered one, but it did not arrive until the latter part of July, so I was able to procure the above amount only. I have no doubt that 1000 pounds of extracted honey could have been produced if the extractor had been in the yard the entire season.

There is considerable profit and pleasure



FIG. 1.—General view of W. R. Bartlett's apiary and poultry plant, located in a young orchard. A similar view is shown on the cover for this issue.

both in poultry-raising and in beekeeping. Both of these pursuits require patience and perseverance; so success in many cases depends entirely on the man. It is my plan to keep on raising a few chickens as long as they do not interfere and bother me in apiary work.

Dundee, N. Y.

1500 CHICKENS AND 50 COLONIES OF BEES

Why the Two Lines Go Well Together ; Specializing in the Production of Sterile Eggs

BY W. R. BARTLETT

The combination of bees, poultry, and, I might add, an orchard, is an ideal one. We have two acres of land in a young orchard, and here we have the bees and poultry. A good growth of elderberry bushes and small trees on the south, east, and west lines of the lot, and the poultry-buildings on the north, furnish a good windbreak. We have from 1000 to 1500 chickens and 50 colonies of bees.

As we hatch all our chickens with incubators we are enabled to produce eggs and broilers (cockerels) when the prices are the highest. We feed the newly hatched chicks nothing for the first 48 hours, after which one of the commercial chick-foods is given every two hours for the first four or five days, gradually reducing the feeding to morning, noon, and night.

The brooder house, one room 28 x 16, is divided into pens by poultry wire, and a lamp-heated movable hover is placed in each pen of 100 chicks. This admits plenty of pure air, gives scratching-space, and insures perfectly sanitary conditions.

Grit, oyster-shells, and charcoal are continually before all fowls. The morning and evening meals for the fowls of all ages consist of mixed grains thrown into the litter. A dry mash, fed in troughs, is given at noon. Green food is fed to all at nine in the forenoon.

At the age of six weeks the chicks are placed in the colony houses and given the free range of the orchard. About Oct. 1 the pullets are moved to the large winter houses. The males are put with the two-year-old layers during the breeding season only—from January 1 to June 1. The pullets are kept for laying entirely, as we make a specialty of sterile eggs for table use. We have a special trade in Cleveland, where there is a growing demand for *sterile* eggs.

We have not been in the bee business as long as we have in the poultry business; but we find business methods apply to the bees as well as to the poultry. A complete system of accounting is maintained. The hives are placed in rows, each one in the shade of a tree. Each hive bears a tin tag on which is painted the row letter, and hive number, enabling one to locate any hive immediately.



FIG. 2.—One of Mr. Bartlett's poultry-houses at close range.

In the management of bees and poultry, every man, as he gathers experience, adopts methods peculiar to his own needs and conditions. We have found that it is the best policy to have all hives and parts uniform and interchangeable; and we therefore purchase all our supplies from one reliable manufacturer, which saves much time and labor.

We operate principally for comb honey. In order to check swarming somewhat we believe in plenty of hive room and ventilation. In the spring all queens are clipped.

We find the smoking plan of introducing queens one of the best.

There are several devices which have proven to be very convenient, among which is a frame the size of a hive covered with wire cloth, which, when placed over the top of the frames, prevents the bees from flying out and robber bees from getting in when the cover of the hive is off. At the same time, one is able to see what is going on in the hive. When a hive is being robbed we find a wire-cloth box, large enough to telescope over the entire hive, very effectual.

Early in the fall all colonies that are short of stores are fed a sufficient amount of syrup, so that none have less than 25 lbs. for winter. Weak colonies are united by placing one hive on top of the other, with a screen between them for three or four days.

Our bees winter on their summer stands, and are protected with chaff cushions in a super on top (grain-bags, one on each side), together with an outer covering of roofing paper securely tied with a heavy cord.

There are many reasons why the bee and poultry businesses work together advantageously. Each business has its own busy season. The incubating and brooding of chickens is practically over before the busy season with the bees begins. Another advantage of the combination is that the same land can be utilized for both. Besides this, poultry fertilizes the land, bees fertilize the fruit, and the fruit-blossoms furnish the bees with nectar.

Our idea is to have a good laying strain of White Leghorns, a good laying strain of Italians, and to "keep on the job."

North Ridgeville, Ohio.

A BEE AND POULTRY PARTNERSHIP

BY RUTH C. GIFFORD

My mother and I are in the poultry and bee business in partnership. The days I am busy with the bees she takes entire charge of the poultry. We have struck some "bumps" with the bees, but more with the poultry. So the things that follow in this article are from plain hard experience.

For several years our troubles started a few days after the first chicks were hatched, and, in spite of all our care, we seldom raised half of them. Some died with the white diarrhea, and others just dried up until they looked like bumble-bees, and fell over dead. Then we decided to change the feed and the method of management. Since that time we have seldom had a sick chick. With this method we give the chicks luke-warm water and grit when they are 40 hours

old. Two hours later we give them a little bit of fine oatmeal. This is given them every three or four hours for three days. After that we use a good chick-feed of mixed grains. We usually buy this by the hundred pounds direct from some poultry-supply house, because we find that by so doing we can save about a cent a pound. When the chicks are a week or ten days old we start to give, once a day, a level teaspoonful of commercial beef scrap and fine bone for every twenty chicks. We feed often, but give a *very small quantity* at a time. All the feed is scattered in straw or hay-heads, and the chicks have to scratch for it. When they are about a month old we add wheat and cracked corn to their ration, and give them all they want to eat. We never give chicks any kind of ground feed.

Next the gapes started among the chicks. We finally settled on the old - fashioned horse-hair method to remedy that. We could not always make it work, though, until some kind neighbor told us to catch a small string behind the two little hooks on the back part of the chicks' tongues, and to hold on to the ends of the string with the thumb and first finger of the left hand. This prevented the chicks from jerking in their tongues and sending the hair down their throats instead of their windpipes. If the little loop in the hair is dipped in turpentine the worms let go much easier. We never send the horse-hair down their windpipes more than three times. Then we let them sleep in a basket for several hours, and after that try again if they are still gaping. However, we usually find that they have all stopped.

Our chicks had lice, too; but we never touched them to look for lice until they



FIG. 3.—Mr. Bartlett's method of preparing hives for winter. A super is placed over the brood-chamber containing a chaff cushion held away from the top-bars by means of a Hill device. The super-cover is then put on, and the whole hive wrapped in a heavy grade of black enameled felt. The regular hive-cover is put on top, and the whole tied together. Lastly the paper-cover shade-board is put on and weighted down.

were ten days old. Then we poured a mixture of four parts of coal-oil and one part of crude carbolic acid over the bottoms of the coops, and that night picked the head-lice off their heads. This is not pleasant work; but chicks can't live with lice boring into their brains. We waited until they were ten days old, because then the handling does not weaken them, and we did it at night because they were sleepy and did not make a fuss.

When the chickens weigh about three pounds we select the pullets we want to keep for laying. As our chickens are Plymouth Rocks we have to try to guard against the type that gets overfat. We select the active, bright-eyed pullets that have medium-large combs, broad breasts, and are wide

between the pelvic bones. Even after this care we seldom risk keeping them over two years. In order to tell which are the two-year-old hens, we place hog-rings on the left legs of the pullets one year, and on the right legs of the pullets the next year. Then we sell the hens in June and July after their second winter. We like the hog-rings because they are easy to use and so cheap that we don't have to bother removing them when we sell the hens.

North East, Md.

BEEKEEPING, POULTRY-RAISING, AND GARDENING

BY C. H. GEBHARDT

On Nov. 1, 1912, I housed 18 yearlings, 25 pullets, and three cockerels of the White Wyandotte strain. After having tried many other breeds I think that the Wyandottes are the best all-around breed for every purpose. I had White Leghorns once, and could get a few dozen eggs more per year; but for broilers they are of no use; and in the fall, when one wants to sell the old hens, their carcasses will bring hardly any thing, while White Wyandottes make the finest broilers, and the old hens weigh from 7 to 8 lbs. They are good layers and good moth-



FIG. 1.—C. H. Gebhardt, Lake Geneva, Wis., and his White Wyandottes.

ers, while Leghorns are non-sitters; and if one wants to raise Leghorns he can not find enough sitters, so he must keep a few of some other breed for sitters or use incubators, which will not pay for a man with small means.

I feed my laying hens a mash composed of equal parts of bran, corn meal, ground oats, chopped alfalfa, and 1 lb. of beef scraps, keeping plenty of oyster-shells, grits, charcoal, and fresh water before them all the time. At noon I give them a few handfuls of wheat in their litter to keep them busy scratching. In the evening I feed them equal part (my own mixture) of wheat, cracked corn, and oats.



FIG. 2.—Mr. Gebhardt in his apiary, Lake Geneva, Wis.

I paint the perches every week with kerosene and carbolic acid, and powder the nests every week with Persian insect-powder. Once a month I change the nest material, also the litters out of the scratching-pens. For the laying hens I have a room 10 x 12 feet next to my horse-stable, so it is nice and warm. The scratching-pens, as can be seen at the extreme left of Fig. 1, are made out of old hot-bed sash 10 x 12 feet. The yard is 30 x 50 long, and in summer the chickens have free range.

My wife takes care of all the young chickens, hatching them under hens. All this we do in our spare time, as I must attend to my garden from 7 A. M. to 5 P. M. The bees I attend to mostly alone in summer.

Sometimes I took comb honey out at 3 A. m. as the bees were quiet, and it was not so hot as in the bright sun, and at 7 A. M. I was through. The extracting of honey and grading of sections we did evenings. You see if a man is ambitious he can do a good deal.

Lake Geneva, Wis.

BEES AND POULTRY FOR ELDERLY PEOPLE

Chicks Eating Drones

BY H. H. SNOWBERGER

My wife and I, now both past 75 years of age, jointly own three acres of ground, and have for years kept bees and chickens in the same lot. We have been quite successful. While I do the work with the bees, and feed the old chickens, the care of the young chicks falls mostly to her during swarming time, and until the honey-flow is over, when I assist her to some extent until later in the fall when cold weather sets in. Then I assume all the work, both with bees and chickens. While I do quite well with the bees, there is occasionally a season, as all beekeepers know, when the honey crop is short or an entire failure; then an income of from \$150 to \$175 per year from our chickens comes in good play to bridge over the shortage from honey.

"But," many ask, "will the two get along peaceably together? Will not the bees sting the chickens?" Well, that depends. So long as we kept any black chickens we had many a chick stung to death; but when we changed to Barred Plymouth Rocks there were not so many. Five or six years ago we changed to Buff Orpingtons, and have had practically no trouble from stinging since, although the hens with their broods (we use no incubator nor brooder) are among and close to the hives more or less all day. I don't think we have had a chick badly stung

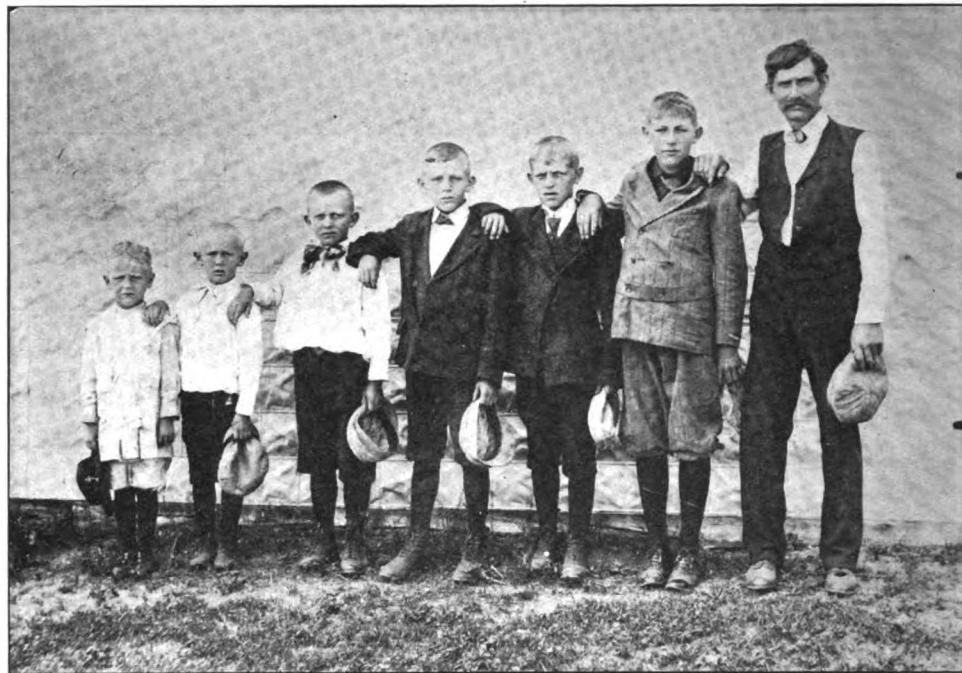
since we have kept Buff Orpingtons. A very few times I have seen one or two bees attack an old hen when she came too close or became too fussy close to a hive. But she would soon skeedaddle, and the brood would follow.

One advantage in keeping chickens in the same yard with bees is getting rid of drones. I don't aim to rear many drones except in a few choice colonies; but, as all beekeepers know, almost every colony will find or make a place to rear a few drones; and in manipulating my bees I always have a sharp knife in my tool-kit; and if I find any undesirable drone brood I shave their heads off, when, of course, the bees will drag them out and drop them in front of the hive, where the chickens soon find them and learn to eat drones, and soon go to catching live ones, picking them from among the workers on the alighting-board, and even catching them on the wing in front of the hive. I have my hives close to the ground; but if I have any choice drones that I wish to save I must set the hive 20 or 24 inches above the ground. This work is invariably done by the young chickens after the mother hen has left the brood, or when they weigh 1 1/4 to 2 lbs. I don't remember ever seeing an old hen catching drones; but the chicks do, and they go about it with perfect impunity, seldom being attacked by bees. Not all the chicks nor even a majority of them catch drones; but every season a few learn the trick, and they practice it industriously and successfully. I have often watched them to see if they caught workers, but could never see them catch a worker.

The Buff Orpingtons do finely for us along with bees. They are of good size, easily confined, a fair layer, good mothers, not easily excited, a splendid table fowl, and the nicest fowl to dress we ever raised. They sell very readily on that account, but the hens are inclined to be a little broody.

We eat all the eggs and chicken we want, and sell \$150 to \$175 worth of eggs and chickens per year. We also keep a cow, and from these three sources we make a comfortable living on our three acres of ground, and have a little laid by for a rainy day which is fast approaching.

Before I engaged in bee and poultry keeping I worked by day's work, and little more than made a living. For some years I have not been able to do hard work; but by keeping bees and chickens I need not work nearly as hard as I formerly did, and can make a much better living than when doing day labor; and there are many elderly people in limited circumstances barely making a living at hard labor who could materially increase their income, and per-



Anton Larsen and his six honey-eaters.

haps prolong their lives, if they would quit hard labor, for which they are no more fitted, and engage in these same occupations, especially if they have a small permanent home of their own.

Huntington, Ind.

A BACK-YARD POULTRY-PLANT

BY GEORGE T. WHITTEN

My poultry-plant occupies a plot of ground about 20 by 50 feet, and consists of four houses six feet square, two-story, with gable roof, $6\frac{1}{2}$ feet to gable, and $4\frac{1}{2}$ feet to the eaves. The lower floor is for a scratching-space, and the upper one for roosts and nests. A shutter is provided on each side, two feet high; these open out and rest on prop, and are kept open in summer for ventilation and shade. They are closed in winter, making the house absolutely tight except the door in the south end, 2 feet wide by 5 feet 8 inches high, which has wire on the inside and muslin on the outside. The cloth is put on late in the fall, and taken off early in spring.

All inside fixtures are home-made except the drinking-fountains. These are eight-quart galvanized-iron pails, costing ten cents each. They are the most convenient fountain I can get, and give the best satisfaction.

They are placed on a slatted platform raised 14 inches from the floor. This keeps the water clean, and does not take any of the floor space.

I feed scratch food in the litter night and morning, except two or three feeds a week when oats, corn, or boiled vegetables are given for a change. Dry mash is kept before them in hoppers at all times, also grit, shell, and charcoal. They have green feed every day in the form of lawn-clippings, turnips, Swiss chard, or beets. I sometimes feed sprouted oats.

My chickens are hatched by hens and incubators both, and brooded in fireless brooders. These are 3 feet square, with floor, and a covered rim 3 x 6 feet on the front. Cheese-boxes are used for hovers with a hole cut on each side in front 10 inches apart, so the chicks can pass in and out at either side. These are placed in shoe-boxes that are the same width as the cheese-box, so that the entrances to hovers come in the corners of the box, or against the sides. In this way the chicks crowd one another into the hover rather than out. A cover is provided for the hover by means of a wire hoop that fits the inside of the cheese-box, and covered with burlap. Wires for holding it are bent to hang over the edge of the box. By these the mats can be adjusted to the size of the chicks by raising or lowering them. Chick



Mrs. Larsen and her flock of grain-eaters.

feed is used, and growing mash kept before them at all times. Green food is given every day.

For the best results pullets should be hatched the last of March or the first of April, and kept growing as fast as possible so they will begin laying during October.

Results for one year: 39 hens averaged 171 eggs each for the year. Paid out for feed, etc., \$115.29; received \$277.65—profit, \$162.36. This includes eggs and chickens that were produced and sold.

I think there is no combination that could be worked together on a farm to better advantage than bees, poultry, and fruit.

Hartford, Ct.

WEEDING OUT THE HENS THAT DO NOT LAY

The Use of Trap Nests

BY C. A. KINSEY

Three years ago I bought two cocks and twenty hens, reputed to be good layers, because, I suppose, they were White Leghorns. For two years those hens and increase did not more than pay for their feed. I fed them the best I knew how, which was according to the good old days on the farm when I was small, and went out in the morning and threw the hens a pail of grain from the granary, and gathered the eggs at

night. Once a year or so father traded a rooster with one of the neighbors, and the neighbors all did likewise. I don't believe now that any of those flocks ever paid their keep, barring the fact that there was a good deal of grain scattered around that they could get which otherwise might have been wasted.

A year ago I got a second-hand incubator, and through the catalog with it I secured a lot of free poultry literature from the manufacturers.

Feb. 1, 1913, I selected 25 Leghorn pullets and 8 Barred Rock hens and pullets, and I bought two Leghorn cockerels and a Barred Rock cockerel to mate them with. They commenced to lay during the fore part of February, and laid fairly well during March and April, but not enough to pay for more than their feed. I knew that some were laying better than others; and in order to get their eggs for hatching I made some trap nests, put numbered bands on the pullets, numbered each pullet's eggs, and saved the best layer's eggs for hatching. I put in the trap nests May 12, and by July 12 I had found out several things about my hens. Out of the 25 Leghorns there were six that had laid 35 to 40 eggs each. Others laid from 5 to 20 each, and three *none at all*. They were good lookers; and but for the trap nests no doubt I would still have those

three hens for breeders this year, for those three hens, mind you, would go into the nests just as often as the better layers, settle themselves comfortably for an hour or so, and then cackle as loud as any, but never lay an egg! When I dressed them for the table later, I found them to be practically barren.

During the latter part of the season some of the medium layers caught up with the best ones; the others I sold, or killed for our own use.

The total eggs laid by the flock from March 1 to Dec. 1 would pay for the feed consumed by the old flock and the new.

We have had eggs for our own use and hatching, and sold the rest; had all the fryers needed for a family of four, and sold \$16.00 worth besides; and have for breeders 15 Leghorn hens and 6 Barred Rocks; also 30 Leghorn pullets that are beginning to lay, and 32 Barred Rocks. I got some new cockerels of both breeds from flocks of good reputation as layers. I am also following the best methods I can learn as to feeding; viz., feeding in litter for winter, balanced rations, mash, green bone, sprouted oats, chopped vegetables, clean quarters, etc., and if they don't lay it will be because it isn't in them to do so. However, I expect that, with proper care, they will lay fairly well, and, with the aid of the trap nests, I shall be able to select the best layers, and thereby get cockerels that will produce layers, for it is claimed that the cock is two-thirds of the flock in that respect.

Another thing, I don't have to hunt in all the out-of-the-way places for eggs. The hens prefer the trap nest, where they are unmolested. The big Barred Rocks will even push their way in some time early in the morning before I have set them for the day.

Of course, trap nesting requires attention. For the good of the hens they should be looked after every two hours, at least, though mine have to go from one o'clock to nearly six in the afternoon.

Belgrade, Mont.

ASHES TO EXTERMINATE RED MITES AND LICE

BY W. H. LEWIS

It is over 30 years since I bought my first dozen of eggs from pure-bred fowls, and about the same time made an incubator. During this time I have had about all of what A. I. Root calls "happy surprises." "Convergent" poultry-yards and round barns were voted a "dismal failure" in this region about 20 years ago. A few were

built of each; but in every case they were torn down and the colony plan, or long house with yards on each side for fowls, and the square barn for the farm, were substituted.

Hot tallow for chicken perches I tried about 15 years ago, and it is a waste of time and tallow. Dirt sticks to the tallow in a very short time, and the mites make "bridges" over it.

During these thirty years, up to the last four years, my wife has been considered the "boss" of the poultry part of our ranch, and she knows something about chickens too. During the time mentioned of our "joint" management we have fought mites and lice by the millions, and I must confess we came out second best, as we never could exterminate them.

Four years ago I determined to take up the chickens as a sole business, having arrived at the age where the old man is crowded out by the younger, and also concluded that, if I could not make a success, it did not much matter, as my wife and I have always tried to sit tight on the "nimble shilling."

I commenced by increasing the flock, and cleaned out all the chicken-houses; we had used a good deal of slack lime as a deodorizer prior to this time; but not having any on hand the idea occurred to me to use ashes, which I did, and soon came to the conclusion that ashes are better than lime. Before summer was over I also noticed that my young chickens in fireless brooders were alive with mites while the stock in the old houses was perfectly free—first credit to the ashes. About this time I sold the old farm, built a new home and a lot of chicken-houses on the colony plan; moved my young stock from the old farm, sold the rest, and have done nothing else since (three years) but tend to my chickens and bees. I have used nothing in my chicken-houses (which are double-floored) but coal ashes as a deodorizer, about two gallons to each house holding about 50 hens, once a week at cleaning time, throwing the ashes on the droppings platforms, and over the top and ends of the roosts. Up to the present I have not seen a mite, no lice, but few fleas. These houses, now three years old, have not been whitewashed, nor has a particle of disinfectant of any kind been sprayed on the inside; and now I will give a bonus big enough to start all the millionaires of the United States hunting to find a single mite, louse, or flea on the inside. Nothing but a plentiful dusting of coal ashes did it, and the ashes go out with the droppings every week to fertilize the garden, and a new lot

put in. Two years ago I gave my daughter, living on the lot next to me, a dozen hens from my pens, and in about a year the mites and lice came near finishing them—no ashes used. Since then ashes have been used according to my directions, and now chickens are clean.

To conclude, thoroughness is necessary in every thing to be successful. If my method is followed, and fine coal or wood ashes used, it will positively rid and keep clean any chicken-house, at least in this locality.

East Barnaby, B. C.

THE BEST POULTRY-HOUSE FOR SUMMER AND WINTER

A Home-made Poultry-house for a City Lot

BY E. H. UPSON

After more than forty years of experimenting with different styles of houses I have, by close observation, come to the conclusion that a cheap well-ventilated dry house is more satisfactory than the more elaborate affair. Having retired from the farm I am now located in the suburbs of a city of 13,000, and last spring I built a poultry-house which is so satisfactory that I should like to describe it briefly for the benefit of others of the GLEANINGS family who, like myself, are small beekeepers and poultry-raisers in a sort of play-and-profit combination.

The house is 12 x 20 ft., inside measure, and 7 feet high at the eaves. It has a pitch roof, and is set on a solid concrete wall. In order to make it rat and mouse proof I cemented the floor with a concrete of one part Portland cement and six parts gravel without sifting.

For convenience in letting the fowls to and from the yard I have an opening about 9 by 18 inches, fitted with a slide which I carefully close at night, and feel sure that nothing can molest the chickens, as all other openings are carefully protected by galvanized wire cloth. In one side, and near the end, I have a door 2 ft. 8 inches by 6 ft. 6, which, of course, I keep closed all the time except when in actual use. The building is enclosed with beaded drop siding, which makes it sufficiently warm for ordinary purposes.

For ventilation I left two openings on the south side, each 20 by 60 inches; one opening on the north side, 20 by 60 inches, and one in the east end 20 by 40 inches; also an opening in the door 20 x 20 inches. All these openings are closed with heavy galvanized cloth of mesh 5 to the inch. For summer I open all these windows and leave

them open; but for winter I tack heavy brown muslin over the openings except on the south. I have two barn windows, and on the east one window. This gives sufficient light, and the muslin gives sufficient ventilation and at the same time prevents the winds from blowing into the building. I have two rows of perches extending the whole length of the building on the north side. Two rows across the west end, and two rows on the south run up nearly to the door, which is located near the east end. These perches will accommodate 150 ordinary-sized chickens, and are high enough to give plenty of room for nests underneath. The perches are all placed above droppings-boards; and for ease in cleaning, the droppings-boards are all hinged on one side and hooked up on the other, so that it is the simplest matter in the world to clean the boards. For convenience in handling the fowls I placed the perches in rows around the walls, and can reach any bird in the house from the floor without disturbing any of the others.

The material for this building cost about \$90 in our local market here. This includes paint for two good coats.

Inasmuch as I did all the work myself, digging the trench, making the wall, doing all the carpentering, painting, etc., I am unable to state just what the entire cost would be; but the labor and painting would probably be not far from \$35 at present prices for labor of this kind. Some readers may wonder why I use a cement floor instead of a board floor. I will tell you. I consider a board floor the *worst* factor in producing disease among fowls that I know of.

Ubee, Ind.

A WOMAN'S EXPERIENCE WITH BEES AND CHICKENS

BY MRS. S. H. STOCKMAN

I have been a beekeeper for forty years, and a poultry-raiser for more years than that. As I said in the March 1st issue of GLEANINGS, my husband and I were in partnership with the bees after the first few months (not a silent partnership) until I took sole charge of the 20 colonies left, about 15 years ago, I think; but the poultry from the first has been my sole charge.

My husband's mother started me in the poultry line in 1870—43 years ago—with a Brahma hen and her flock of crossbred chickens. It was late fall, the chicks were about half feathered, and I smile now when I think what an unprepossessing lot they were; for if there is a more ungainly thing

in existence than a half-feathered Light Brahma chick I have yet to see it. I have never been out of hens since. I commenced beekeeping in 1871, and have enjoyed both as well as helped to keep the family pocket-book from getting entirely empty at times.

I have kept many pure breeds and some crosses; but after all these years and the experiences which they have brought me I prefer the White Wyandottes for a general all-round-purpose money-making fowl. If well bred I find them healthy, good feeders, good layers of handsome eggs, and always ready for market from broiler size to adult fowl. I have of late years tried the Rhode Island Reds and Barred Rocks beside them, and found the White Wyandottes ahead in many respects. I have hatched for thirty years, mainly with incubators, and raised in brooders. I used at first the Monarch as made by James Rarkin; later the Cypress incubators and brooders, which we have found perfectly satisfactory if given proper care. We hatched chicks then by the hundreds for several years, and had very little loss by disease, my husband using the incubators and I the brooders, and caring for the laying hens. For the last 15 years I have kept from 50 to 100 layers, and raised from 100 to 200 chicks, seldom with a loss of more than half a dozen for the trying time the first two weeks.

I know well from experience that bees and poultry go well together in the way I manage it. While my husband is running the incubators in March and April (as we must hatch in those months in this State to get well-matured pullets for winter laying), I am looking over the brooders, cleaning them out, etc., and any thing needful, doing also the same with the bees. We ran a bee-supply business at our village; had for 15 years before coming to the farm, and I did about all the nailing and painting, putting together the frames and other inside work of the hives, so I well know how to do it, and enjoy doing it. Still, when the chicks hatch I take the sole charge of them and the brooders. After the bees are all looked over in April there is not much to do for them, so I give the chicks my sole attention for two weeks, then get them on to dry chick feed; and after that, with full feed and water-dishes, they nearly care for themselves. When the busy time comes with the bees in July, swarming time, as I have my queens all clipped, and practice brushed swarming, I soon have them so but little needs to be done for them except to give them room if needed; and as I have their fixtures all ready in early spring I have nothing to do but set on the filled supers.

About Aug. 1 I take off all clover honey,

prepare the hives for the fall flow from goldenrod, fireweed, and aster; cut out and sell all the cockerels that have reached the broiler size, and all the undersized pullets; sell alive all my two-year-old hens, which compose about half my flock of about 100, leaving room for my 50 or more pullets which I get into the house for winter laying. I sell all my stock alive to a neighbor who supplies a large summer hotel. My bees usually get enough for winter from the fall flow, and seldom swarm after July. So I generally have little feeding, if any, to do; so by October I am pushing my pullets with good feed, and get them to laying by Thanksgiving or before.

Auburn, Maine.

OLD HIVES RETAIN THEIR VALUE

Painting Necessary

BY L. W. CROVATT

Apropos of the discussion, p. 750, Nov. 1, regarding the value of old hives to the producer of honey, I wish to say that the article was correct in all essential details, as has been demonstrated in a practical manner in my own yard. Dr. John S. Howkins, who was, perhaps, one of the largest bee-keepers of this section of Georgia, had at one time 400 colonies located in West Savannah. Illness caused the physician to turn the active management of his yard over to other parties, and, as usual, neglect caused a quick deterioration both as regards the attractive appearance of the yard and the production of honey, the bees having been allowed to dwindle rapidly.

After one year Dr. Howkins decided that to attempt caring for his bees was out of the question; and at the eleventh hour, in a figurative sense, I was called upon to take over the bees and fixtures. Of the latter there were, perhaps, some hundreds of frames and a hundred hives. These had been in use for three or four years, some longer; but after getting the bees and empty hives to my home yard I immediately stored them out of the weather and made such small repairs as necessary, this being largely in the form of new rabbets, etc. The hive-bodies, after exposure to the elements, have proven, after a thorough examination, to be absolutely sound, only about ten or twelve being bad. These were discarded, and the sound ones again placed in use. The old hives are doing full service, having been in use in my yard for over nine months, and they compare favorably with the new ones—that is, stock made up for increase, etc., within the past few months.

I regard the old hives as equal to the new so far as point of service is concerned, and the outlook now is that a new coat of fresh paint will be all that is necessary to carry them through several years of work in the apiary. In view of the advance on lumber the advance on hives was a foregone conclusion some time ago, and the saving in this line represents a rather "pretty penny" in the operating expenses of this and the coming year.

Hives can be saved and used constantly for years by the judicious use of paint; but it is a wise move on the part of the Southern beekeeper to have the bottom-boards well above the ground in order to avoid the absorption of moisture from the bottom-board into the lower edges of the body sides and ends.

And now for the results of painting. I am well aware of the fact that there are strenuous advocates of the unpainted hive; but if these had gotten a glimpse at the results of the weather on the few bad hives they would have probably been convinced

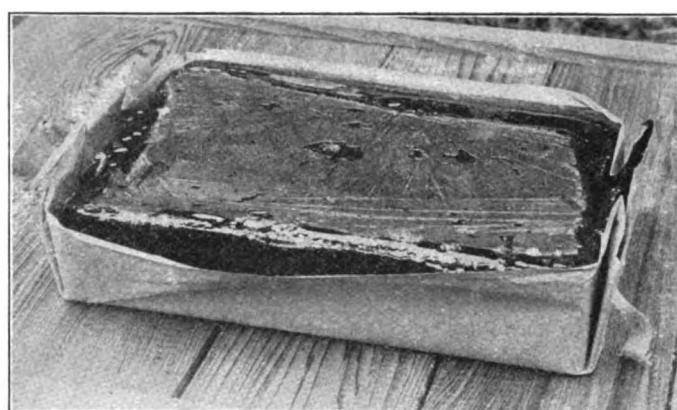


FIG. 1.—The finished cake or block of candy. It measures approximately 1 1/2 in. thick, 6 1/2 in. wide, and 9 1/2 in. long. Weight about 5 lbs.

that paint is valuable in the preservation of the wood; for in every case where the old bodies had crumbled from rot, the outer portion, in the form of a shell, was the only part remaining intact—rotten to a certain degree, but by far better than on the inner portions. Had it not been for the paint the whole structure would have crumbled at the first rough touch.

Savannah, Ga., Nov. 25.

HARD CANDY FOR WINTER STORES

Some Experiments in Wintering Bees on Candy Alone

BY H. H. ROOT

As promised in our last issue, we are presenting herewith a number of engravings showing the different steps in the process of supplying cakes of hard transparent candy made of granulated sugar and water.

For the benefit of our readers who do not have access to back numbers we are repeating herewith the directions that have been given before in these columns:

HOW TO MAKE THE CANDY.

Into a dish of hot water on the stove slowly pour an equal amount of sugar, stirring constantly. Make sure that the sugar is all dissolved before boiling commences. If this precaution is not observed, some of the undissolved sugar is likely to burn, injuring the flavor of the candy and almost surely causing trouble with the bees later. If you have a candy thermometer, watch the temperature, and do not let it go above 275 to 280 degrees. Test frequently by dropping a very little of the syrup into cold water (about 50 to 55 degrees F.). When the boiling has continued long enough the drop of candy, when cooled in the water, should be hard and brittle when taken out; but when placed in the mouth it should soften slightly, so that it is tough. When this time has arrived, pour the syrup immediately.



FIG. 2.—Giving the candy to the bees.

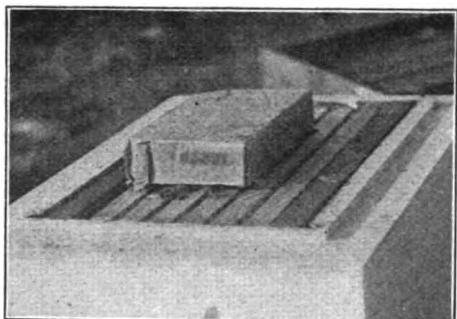


FIG. 3.—Cake of candy in position.

The color of the candy when cold should be about that of light amber honey. If it is darkened very much it is scorched and unfit for the bees. To prevent the scorching, reduce the fire toward the last so that the syrup will boil but slowly.

We find that the block of candy is made tougher, and that it is less likely to assume a granular form so that it crumbles to pieces, if a small amount of honey is mixed with the syrup. About one pint of honey to 25 lbs. of sugar is sufficient. We also find that a given amount of sugar will make very close to an equal amount of candy. In other words, if one desired to make up 50 blocks of candy about the size shown in these illustrations (which average 5 lbs.) he will need to get ready about 250 lbs. of sugar.

If the boiling is done in a kettle it is a good plan to put in about half a teaspoonful of lard in order to prevent the mixture from boiling over.

If the paper pie-plates that have been mentioned before in these columns hold enough candy, the syrup, when it is ready, may be poured into them; but ordinarily a somewhat larger amount of candy is necessary. The pie-plates hold about 1½ lbs. of candy.



FIG. 4.—Sheet of enameled cloth laid over the candy.



FIG. 5.—Covering up the candy with a chaff-tray.

The cakes of candy shown in these illustrations are about 1½ inches thick, 6½ wide, and 9½ long, and they weigh, on the average, 5 pounds. Forms should be made of proper size, which will make the cakes of candy smaller at the bottom to facilitate their removal when cold without taking the forms apart. Before pouring in the candy, line the forms with wrapping paper, folding the corners neatly.

The appearance of the finished cake of candy is shown in Fig. 1. When giving candy to the bees, lay three or four small sticks across the top-bars in order to leave a bee-space underneath, Figs. 2 and 3. Lay an enamel cloth on top, Fig. 4, over which set the chaff-tray or super containing a chaff cushion as the case may be, Fig. 5.

The bees start working on the candy at once; and after a week's time, if the cakes are lifted, Fig. 6, a line of grooves corresponding to the space between the top-bars is the result, said grooves being eaten out by the bees.

Fig. 7 shows a close view of the candy after having been in the hive just one week. By this time the three spacing-sticks will have become imbedded in the candy to some extent; but the spacing is not so important after the bees have once eaten some of the candy, forming passageways.

Fig. 8 shows the remains of a paper pie-plate of candy that has been in the hive for several weeks. The plate retains its shape



FIG. 6.—Examining cake of candy after being in the hive a week.

fairly well, even to the last, although, of course, when the candy is about gone the bees gnaw the edges to some extent.

We are wintering enough colonies on hard candy alone, without any liquid honey or syrup whatsoever, to give the plan a thorough test. So far all is well, although we shall make a fuller report later on.

On Dec. 4, when we made the last examination, we found brood in all stages in many of the colonies. The great blizzard occurred Nov. 9—11; but the weather during the last half of the intervening period was quite warm.

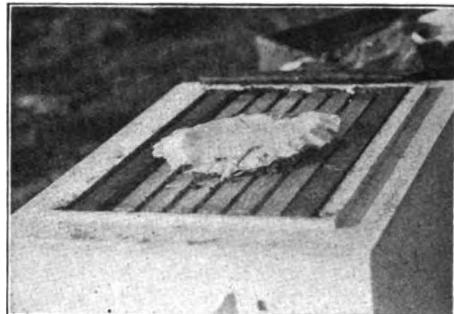


FIG. 8.—Paper pie-plate of candy left in the hive until the candy had been practically consumed.

Mr. Pritchard believes that hard candy is the best material to feed in an emergency during cold weather. It may be that in some cases it might pay to winter bees on candy alone throughout the whole winter, although the bees having the candy seem to be somewhat more active and more inclined to fly than bees having sealed stores of sugar syrup or honey. No doubt this is because the food supply is always opened up, so to speak, thereby placing the bees in very much the same situation that they would be in if they were being fed slowly.

BEES AND POULTRY, OR JUST BEES FOR THE EXPERT APICULTURIST

BY O. L. HERSHISER

It is to be presumed that the poultry enthusiasts will come forward in the special number opened for a discussion of their interests to show how that occupation may be taken up by the beekeeper with profitable results. If it be permissible for one who holds adverse views to gain admission to this poultry circle, and raise his voice above the din of cackling and crowing I should be pleased to say a few words.

Can an *expert* apiculturist afford to divide his time and attention, and devote a part to poultry? The results of close observation and careful calculation prompt me to answer, emphatically, *no!*

I have an acquaintance who is abundantly able to carry on

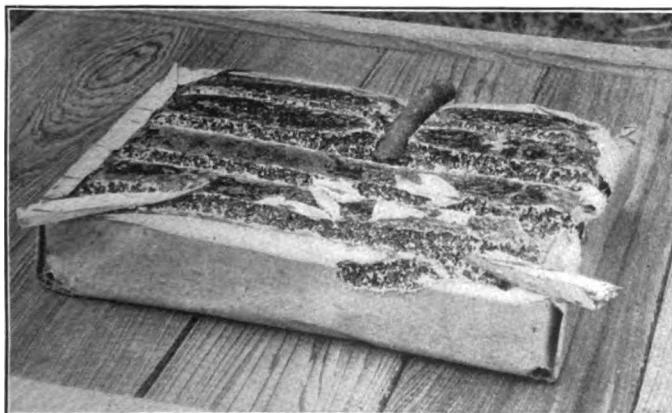


FIG. 7.—A close view of a cake of candy on which the bees had been feeding one week. The grooves show the amount the bees had eaten.

poultry business in the most approved fashion, and he is noted for his strict attention to the details of his business enterprises. Some years ago he launched into the poultry business with a zeal born of a determination to make it a financial success. Eight thousand dollars was invested in a strictly up-to-date plant. His best season was some years ago when 25 cts. per dozen was realized for his entire output of 3000 dozen eggs, and his gross receipts for the same were, therefore, \$750. As the plant was run for eggs, the receipts for breeding stock, eggs for hatching, and poultry for table use, are inconsequential. From the total gross income must be deducted cost of feed, interest on investment, taxes, and other lesser items, such as heat, egg-containers, help, etc.

Only superficial mathematical calculation is required to show that there was little or no real profit in poultry for this individual out of the sum slightly in excess of \$750. Allowing for eggs for hatching, poultry for breeding and for table use, must first be deducted interest on investment, \$480, and taxes at the rate of over 20 per thousand, or at least \$160, making the sum of \$640. Then we have remaining very little for all the other items of expense and profit. It is needless to say the business has been abandoned and the plant gone to destruction.

As the writer had an apiary of from 75 to 150 colonies of bees in one corner of the plot of this poultry establishment for several years, a fairly accurate comparison may be made. The best season with the bees was a crop of 8000 lbs., about 2500 of which was comb, for which an average of 11 cts. per pound, or \$880, was realized. Expenses consisted of rent of yard, \$25 per year; cost of sections, foundation, cases, and help, in all not to exceed \$180, leaving for the season a profit of at least \$700, and this on an investment hardly in excess of \$1100.

I have in mind an apiary consisting of about 65 colonies, spring count, at this time increased to 118 colonies, situated 30 miles from the owner's home. The honey from this yard has been sold for a little over \$625; and, allowing \$175 as the value of the increase, it makes a total gross profit for the apiary of \$800. Allowing \$150 for all expenses, which would include interest on an investment of \$1000, there is left \$650 as the net profit, or 65 per cent on the investment. Figures showing as much profit for an apiary about a quarter of a mile from the owner's home could be shown; and figures showing over 100 per cent for an apiary about 15 miles from the owner's home could also be produced. The hired-help bill for operating these three apiaries

did not exceed \$20 except teaming and carpenter work in the honey-house construction, and these are not exceptional cases.

Except for a very few extreme specialists who have, by expensive advertising and years of persistent effort, succeeded in working up a demand for eggs for hatching at several dollars a dozen and birds at scores of dollars each, where are the poultry-men who can show the net profits from their investments that the expert beekeeper can from his?

Out-apries need be visited only at intervals, and are left for the winter months without attention, and may be left for weeks at a time during the summer months without detriment; but the poultry-man must give his fowls daily attention, at least in the matter of feed and the gathering of eggs. Indeed, any success with poultry depends upon the strict and critical attention of the man behind the hen, *and he must be in evidence daily.*

Operating several out-apries by a man living in a village or city where neither bees nor poultry could be kept, is entirely practicable; but the keeping of one or several poultry establishments successfully at such long range is unthinkable.

Extracted honey does not deteriorate appreciably if kept one or several years, when market conditions may warrant it; and even comb honey may be successfully carried over the winter if necessary; but the poultryman must sell his eggs and dressed poultry when fresh, regardless of market conditions. After all his "fuss and feathers" with the plumaged tribe, the average poultry-keeper receives a net compensation for his work and attention that would make the beekeeper's occupation look like a failure.

I imagine the poultryman who finds the close attention required in his business a bit wearing would find restful recreation and satisfactory profit in keeping bees provided he has the natural adaptability for it; but if the expert apiarist wishes to make more money without the close daily attention required in the poultry business, and has a few hundred dollars to invest, let him establish some out-apries and "keep more bees."

This is not to be taken as advising against the keeping of a few chickens to provide fresh eggs and poultry for the home table, nor the keeping of poultry by the beekeeper situated on the farm, where the details can be attended to by hired help, and where more or less cheap feed is available — nor the keeping of poultry as a pastime, where the pleasure of the occupation is the chief compensation.

Kenmore, N. Y.

Heads of Grain from Different Fields

Power Extractor vs. Hand Extractor

I began to work with bees twelve years ago. I did not know how to use a smoker nor how to get the bees out of the honey-supers. I have gained much valuable information since then from reading about how to care for bees, and from experience.

At first I ran for comb honey; then I ran part of the bees for extracted honey, and used a four-frame honey-extractor; but I found that it was nonsense to use a hand power extractor if there is much extracting to do. I made a mistake when I bought the hand power. I traded it and bought an eight-frame automatic extractor and a 1½-horse-power gasoline engine to run the extractor and to pump water. I back the wagon up to the pump at an out-yard and let the engine pump a tankful of water to water the bees. This is a great saving of labor, and it will pay for itself in two or three years if one has much extracting to do. The honey gets thick, and candies fast as the weather gets cold in the fall; and it is hard work to turn the hand-power extractor when the honey is thick.

I use a push cart and haul from four to six extracting-supers, and eight or ten section supers at a trip.

A motor wagon would be handy to haul honey and bees where the roads are good. I have hauled hundreds of colonies of bees with horses and wagon, but it is necessary to be careful to shut the bees up well, and not have the horses near the bees when the hives are opened.

A small honey-house is handy at an out-yard to store bee supplies and to extract and store honey; but the honey-house needs two doors—one at each end, on account of robber bees. One door needs to be double, as the eight-frame extractor and honey-tanks will not go through a narrow door. When the bees are thick at one door where they smell the honey, there will be no bees at the other door where they can not smell it.

I made a mistake by not working for a beekeeper two months or one summer to learn how to work with the bees and how to take the honey, as it is slow work for a beginner.

A honey-house may be in the middle of a bee-yard if one uses a motor truck; but I use horses, and I want it at one side of the yard, so I can load or unload supplies or honey at any time in the day. I have hauled some honey home from outyards to extract it, but I prefer to have a small house at each yard.

I need one small table in the honey-house, high enough to scrape and case the comb honey, and a low table at the end of it. The two take up the length of the room. I want it high enough to put a 50-lb. lard-can under the gate to the extractor when it is on this table. Sometimes I pile more than 200 section-supers on one table at one time, all full of honey. I make the frame of a table out of two-inch lumber and slant the table legs a little at the bottom, at the ends, and at the sides. I have six legs to a table if it is a long one. Where ants are bad, tables are necessary. It is well then to put small tin lids under the table legs, and to put a little pine tar in them.

Chamberino, N. M., Apr. 4. THE BEE MAN.

A Queen whose Eggs do not Hatch

I have been a beekeeper for the last twenty years, and thought that I had seen about all the turns in the bee business; but I have run across something new to me, for we have a queen that has been laying prolifically for the last two weeks, and there is not one single egg hatched that we can find. She is a queen about four weeks old. I don't know her ex-

act age, as we bought her mother this spring from a Texas firm and introduced her; and the queen that we got from Texas was laying nicely, so we quit watching her till we noticed that they were not building up as we thought they should, then we found that she had been superseded, and a young queen was in the hive; and now the young queen's eggs do not hatch. Can you tell any reason for their not hatching?

San Jose, Ill., June 21.

FRED TYLER.

[Once in a great while we run across a queen whose eggs do not hatch. No reason can be given for this; but it is evident that you had such a queen.—ED.]

Do King-birds Eat Bees and Queens?

Question No. 4, page 557, October *Farm Journal*, is, "The king-birds here eat my father's bees, and sometimes catch the queens. Should they be protected?" The answer is, "Yes. The king-bird feeds on beetles, canker-worms, and winged insects. He does occasionally eat bees; but ornithologists declare that he selects only drones, and does not do enough damage to hurt the hive seriously."

I want to know if the answer is correct. I have watched them eating bees a considerable time after the workers had destroyed or ejected the drones. As the *Farm Journal* editor says, the king-bird does not hurt the hive, but he certainly hurts the colony if he gets only one worker, as every little (one) helps, you know.

Abilene, Texas, Nov. 4.

M. E. PRUITT.

[Ornithologists generally agree that king-birds do not eat worker bees; but we have had reports showing that the crops of these birds had been opened, and that scores of worker bees had been found therein. It has generally been claimed, however, by ornithologists that they eat only drone and queen bees.—ED.]

Experiment in Fitting Comb Honey in Sections Successful

I was greatly interested in the article by Dr. Humpert, Oct. 1, p. 674. I have only five colonies of Italian bees in eight-frame hives. In the summer of 1912 I worked with shallow extracting-frames on each side of the super, filled up with 4¼ x 4¼ plain sections and fence separators. I had a customer who offered to take all the honey produced by my bees; and as I was getting fifty cents for section honey I naturally wished that the extracting-frames were all sections. After thinking it over, I decided to cut out the honey and fit it in sections and give it to the bees to fix, which they did in fine shape. This was during a light flow from balsam. I left the sections on for five days, and received fifty cents each. I found that the best way to cut the honey was with a small fret saw.

Tuxedo Park, N. Y.

E. WILSON.

To Hive Swarms Clustered on Fence Posts

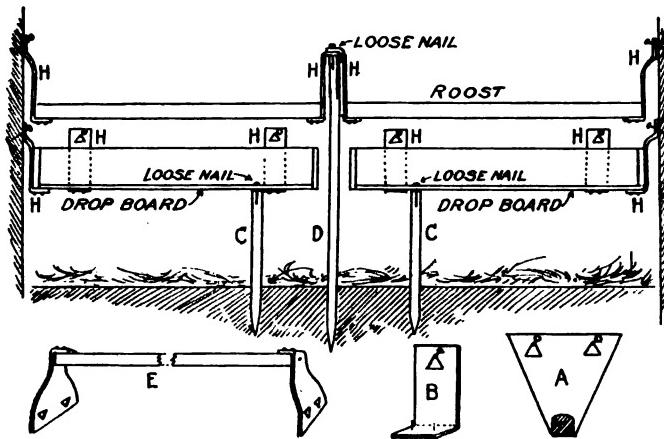
On page 790, Nov. 15, in speaking of places where swarms settle, you say that in many cases they seem to take particular delight in settling on one of the posts of the wire fence where it is a slow and tedious operation to get them. In cases like this, if you will set the empty hive on the ground near the post, and strike the post a heavy blow with an ax or heavy stick, the jar will dislodge the bees and they will fall at entrance of hive as nicely as though they were shaken from a small limb or basket; then a little smoke puffed on the post will stop them from crawling up again. I would rather have swarms alight on posts than on trees.

Filion, Mich., Nov. 24.

DAVID RUNNING.

Removable Roosts and Dropping-boards

For some years I have used the arrangement for roosts described in the accompanying engraving, and found it convenient. It is my own idea, and I do not know that any one else has any system like it. I have not given it to any poultry journal; but if any one thinks it has any merit I shall be glad if he makes use of it.



A, piece of galvanized iron cut 10 inches, triangle shape (nailed to the ends of the roost) with two holes in to hook on two nails in the side of the chicken-house (the nails should slant upward). B, hanger nailed under the droppings-board and supported by nails in the end of the house. C, broom handles driven deep in the earth floor to support the droppings-board with a $\frac{1}{4}$ -inch hole bored through so that a ten-penny nail can drop in. D is a similar support for roost hangers. E is the roost turned bottom up on the floor for small chicks. The perch is then 7 inches high.

The advantage that this system has is that, with a 7-inch hoe having a handle 4 ft. long, and an iron water-bucket, I can clean the droppings-boards from 50 hens, and throw on three handfuls of road dust in about five minutes.

Furthermore, all the hangers (iron) and supports are easily kept greased with crude oil or soft grease with a paint-brush, and will last some time. Then if the roosts hang 12 or 14 inches from the wall, no insects can get to the hens.

Finally, the droppings-boards, being 15 inches from the floor, the hens can go under them and use all the floor space, and the sun can shine underneath also. If wanted, straw can be spread all over the floor for scratching, and all this arrangement can be taken out to clean or oil, and put up again in a few minutes; and it can be easily and cheaply made, the galvanized iron can be cut, including nail holes, with a sharp cold chisel on a hard-wood block if no tinner's shears are handy. My droppings-boards are made of soap-boxes.

St. Louis, Mo. CHAS. W. COLLETT.

Bees Kept in Poultry-house

Bees may be nicely kept in a poultry-house if it is kept as a poultry-house should be. I built such a one last year, and it practically does not need a thing after it is ready for the poultry to make it ready for the bees, and the bees do not take up any of the room that poultry would use. One has to visit the poultry seven hundred times a year (twice a day), and they also have to be provided with an enormous lot of feed; but the bees will get along with only two visits a year, and no feed, or feeding

only what they supply themselves, so I do not see why one should not combine the two; for if one pays, the two ought to pay better.

Grand Rapids, Mich.

J. A. PEARCE.

Blue Ointment to Kill Lice on Poultry

In a recent issue of your magazine Mr. A. I. Root mentions having trouble in keeping his fowls free from lice.

The poultrymen in this vicinity apply blue ointment around the vent, and consider this treatment one of the most valuable discoveries for the prevention of body lice on fowls that has been made for some time, as one treatment will usually keep the birds free of lice for from four to six months. The body lice go to the vent to drink, and, not being able to cross the ring of blue ointment, perish.

The blue ointment must be specially prepared by being softened with vaseline, as the ordinary article is too hard to spread. The method of applying is to take a small amount on the end of the finger and hold

it against the bird until it melts, then make a ring. It must not be used on young chicks, as it is too strong, and will kill them; but it can be used after they are six months of age. It costs here 50 cents for half a pound, which is enough for a small flock for a year.

The best time to apply is in the evening, just after the birds have gone to roost, as it is easiest to catch them at that time.

Tacoma, Wash., Aug. 6. DWIGHT WHITMAN.

The Poultry Journals Criticised

I'm getting disgusted with the poultry journals. About all there is in them is a write-up of "Jones' fancy strain of White Leghorns that we visited last week," or "It will pay our readers well to visit Smith's poultry-yards and see his strain of fancy new-fangled breeds," and, of course, plenty of advertisements of the different breeders and supply dealers, which is all right if there were only some practical articles on the problems that are daily confronting the man with a flock of utility hens which he is keeping for production, and not just to sell fancy-bred stock to another buyer at a high price for him to raise to sell to a third party at a high price, and so on.

SUBSCRIBER

[It is true that a large proportion of the poultry journals are filled up with "puffs" for this, that, and the other; however, there are some good journals that are strictly high-class in every sense of the word.—ED.]

A Profit of \$2.20 per Hen; a Chicken that Learned to Eat Drones

In the fall of 1911 we moved into a rented place on which there was no poultry-house; but as we had 15 hens, 13 of which were pullets, I made a coop out of three drygoods-boxes. The following spring I fenced off a plot surrounding this coop with poultry-netting, and confined them. This plot was about four rods square, containing three large apple trees under which I placed 16 colonies of bees. My investment for coop and fence was about \$5.00.

Besides giving me a profit of \$2.29 per hen they performed valuable service by banishing the wood ants from the bees. When I first put my bees in this place these ants were very numerous, and swarmed all over the hives. I went for a shovel and sought out their beds, dug them up to start the chickens scratching, and they did the rest. By scratching up their beds and eating their eggs the ants decided it was too warm a place and moved out.

Bees and chickens lived peaceably together all summer. One pullet learned to eat drones, and would catch them at every opportunity; but I never saw her catch a worker.

Ogden, Utah, Nov. 28. JOSEPH H. PETERSON.

An Enthusiast in Florida

This is our sixth winter in the State, and our fourth one here. One winter was spent on the east coast and one at Winterhaven. We have a home here. We like it very much. I have been a Methodist minister for over fifty-three years. I shall soon be 76 years old. I am fond of fishing, bee culture, and chicken-raising. I bought three stocks of bees last spring; transferred and Italianized them, and out of the three I made seven. I lost about half of the queens by the king-birds. The bees are all in hives of ten frames. I started north July 3, getting back again Nov. 6. There were two hives in fair condition. The other five were nuclei. I put supers on six of the hives. The bottoms of the hives were all well filled. The supers on the two best were well filled—32 sections from one, and 31 from the other. Another had 17 sections, another 16, and the last had 4—100 sections, 4 x 5. All had very good honey. I do not think my bees will be idle more than two months in the year. JAMES G. TETU.

Tarpon Spring, Fla., Nov. 24.

A Bunch of Questions

I have 18 stands of bees, and am going to buy 80 stands in the spring. Part of them are in crooked combs, but in L. frames and dovetailed hives, so the ones in crooked combs I shall have to transfer to straight combs. This is a fair locality. Please answer the following questions:

No. 1. What kinds of Italians are the best—the golden or leather-colored? Are they the stock you look to for your surplus honey?

2. Do you practice spring feeding to stimulate brood-rearing when the colonies to be fed have plenty of honey? What proportion do you use of water and sugar? and is there any preference in favor of beet or cane sugar?

3. What kind of feeder do you use for this purpose? I have chosen the Boardman entrance feeder. Is there any danger of starting robbing where the feeders are kept clean and no syrup is smeared on the outside to entice the bees.

4. What time in the spring should I transfer my bees? My plan is to wait until the weather gets warm and quite settled, and then drive the bees and queen into a new hive, put a queen-excluder on top of the old hive, and let it remain for 21 days; then drive the rest of the bees into the new hive.

5. In three weeks I want to divide the new hive and introduce a new queen of the best stock. Is that the right time?

6. When you divide your bees in the spring, say a ten-frame hive, how many stands do you usually make from a strong or average stand, considering the honey crop more than increase? How long should the queenless part be without a queen? Do you put wire cloth over the entrance for two or three days? This last part would consume lots of time for an outyard four or five miles distant. Is the above way

a practical plan, or is stuffing the entrance full of grass a better way?

7. In buying queens with $\frac{1}{2}$ lb. or 1 lb. of bees, is there any advantage in buying the bees to be only a sort of pad to the queen to prevent injury to her? Should the bees be introduced along with the queen to my queenless colonies?

8. Do you practice pinching queen-cells through the swarming season to prevent swarming? I am going to run ten-frame hives for comb honey, and eight-frame for extracting. Do you use full sheets of thin foundation for sections? Is there any real gain by it? Do you use bee-escapes for releasing the bees from the supers?

9. In raising a few queens to restock with, will the bees make a queen-cell out of a regular-sized honey or worker cell? In Bulletin 49, by the Department of Agriculture, Albany, N. Y., the instructions are to take a frame that has had brood in it once or twice; cut two rows of cells, and leave one. Then let the frame be cared for by a queenless colony; but it does not state whether it is to be drone-cells or not. Would not the regular cells be too small for queen-cells?

10. What kind of wire cloth should I use to make cages for caging queens? Can I get it of the regular dealers?

Belle Fourche, S. D., Nov. 20. W. A. LOSH.

[1. As a general thing we prefer the original strain of Italians—the leather-colored ones. There are some fine strains of goldens; but most breeders of them have apparently overlooked the business qualities, and breed for color only. This is the reason why so many of the goldens are inferior.

2. The practice among our best producers is to feed liberally in the fall, and to avoid spring feeding as much as possible. Still, there are times when stimulative feeding in the spring can be practiced to advantage. But very often a beginner does more harm than good. For stimulative feeding we use equal parts of sugar and water well stirred together. For fall or winter feeding, we use two parts of sugar to one of water.

There is no preference between the two sugars; in fact, there is no possible way of detecting the difference, even by the best chemists.

3. Of all the feeders on the market we prefer the Boardman. It is excellent for stimulating, and does well in early fall in feeding up for winter. It is not, however, suitable for late feeding. Where one desires to give a colony its full supply of stores at one or two feeds it is too small. In this case the Miller feeder is better.

The Boardman will not cause robbing if one will use ordinary precaution. The outside of the cans and the feeder blocks must be cleaned of any daub of syrup, and the colony must be strong enough to put up a fair defense at its entrance. In feeding weak nuclei an inside feeder, or, better still, slabs of candy are better.

4. The best time to transfer in the Northern States is in the spring during fruit-bloom; but the work may be done at any time of the year providing there is no danger of robbing. If practiced during the clover flow it will cause more or less of an interruption with the colony; and if the season has been on for any length of time it means the cutting up of combs that are heavy with honey. By transferring in the spring during fruit-bloom it avoids this.

Your plan of procedure as outlined is not quite clear to us. If we understand you correctly you mean that you drive the bees with their queen into a new hive on empty combs or frames of foundation. We infer that the old hive is left on the old stand, and that the new hive with its bees and queen is put on top of the old stand, with perforated zinc between. If this is your plan you will be doing an unnecessary lot of work. Better by far remove the old hive from its stand a few feet. Put the new hive on the

old stand and drive most of the bees with the queen into the new hive. Then 21 days later, after all the brood is hatched in the old parent hive, shake the rest of them in front of the entrance of the new hive; finally remove the old hive with its combs, which may now be melted up into wax.

5. The answer to this question will depend somewhat on the modo of treatment adopted in the answer to No. 4. If you are running for increase you can divide. If you are running for honey, we would not advise you to make the division.

6. As a general answer to this question, we would state that, if you desire to make increase, you should not practice dividing. If you desire to make increase and honey both, practice the Alexander method as described in his book. Four or five nuclei can be made from one strong colony; but this is on the basis of no surplus. As a general proposition we would advise making all increase after the main honey-flow is over, and then resort to feeding if the bees need stores. When practicing dividing it is usually necessary to shut up the entrances of the nucleus (moved from the old stand) with a little grass, for two or three days. Grass is better than wire cloth, because it will wilt away, releasing the bees without the aid of the beekeeper. But a far better plan where one has out-apiaries is to move the divided colonies from an outyard. In other words, make the division in some yard other than the one in which they have been stationed previously. Try as you may, splitting a good colony into several units, in the same yard, will result in a part of the flying bees going back to the old stand. The veteran beekeepers know how to overcome this to a certain extent, but not entirely.

Every nucleus should have a laying queen, a virgin, or a cell, as soon as the division is made; otherwise valuable time will be lost. Another thing, a nucleus, as a rule, will not produce bees that will result in strong, vigorous queens.

7. Packages of bees without combs can be sent with or without combs. The presence of Her Majesty does not, so far as we can discover, detract from or add to the success of the shipment. If a pound of bees, however, is given to a nucleus with a queen, the latter should be caged in an introducing cage for 24 or 48 hours. It might be advisable, also, in the case of hybrids or cross bees, to smoke both lots a little before uniting.

8. It is the general practice of honey-producers to destroy queen-cells at the beginning of the swarming season. Swarming-cells, if left unmolested, are almost sure to cause swarming.

You had better run your eight-frame hives for comb honey, and the ten-frame for extracted. In producing comb honey it is always advisable to use full sheets in sections. Starters are used by the manufacturers of bee-supplies for the reason that sections with full sheets do not ship well. Aside from this, there is no reason why starters should be used except on the ground of economy, and a poor economy it is.

We use bee-escapes when we can. Sometimes at outyards we shake and smoke the bees out of the supers.

9. In the instructions above referred to, worker-cells are probably meant, both on the ground of convenience and because they might be accepted more readily for queen-cell purposes. Before you expect the bees to work out these prepared cells, all other brood in the hive to which they will go should be removed first. If you succeed by this method you will need to follow carefully the directions in the bulletin referred to.

10. Ordinary black painted wire cloth will give good results. Do not use any wire cloth painted green, on account of the Paris green in the paint. A two or three frame nucleus with a queen will ship almost anywhere with scarcely a failure.—ED.]

Danger of Spontaneous Combustion

Referring to page 599, Sept. 1, do not store waste in an empty hive, in a box or a small building, but in a tin box with tight cover. Never let waste touch wood nor get air to feed any flame that may start in it.

Spontaneous combustion is one of man's worst enemies, being but little understood, and working silently day and night. It requires just enough air to combine with the combustible to raise it to the temperature of ignition. A draft of air would keep the temperature down and prevent it.

An empty hive is an ideal place to start a fire by spontaneous combustion; but in a tight tin box the heat passes through the tin, lowering the inside temperature, and in case of spontaneous combustion the tight tin keeps the air away from the fire, allowing it to smoulder without danger.

Hammonton, N. J., Sept. 7. C. E. FOWLER.

One Cause of Dark Wax

If I boil bee-comb in an iron or metal kettle to extract the wax, will the wax be a dark color?

Williamson, Pa., Dec. 1. L. H. LINDEMUTH.

[Wax will not be darkened in an iron kettle unless you let it boil for a considerable length of time. The best way, as soon as the wax is melted, is to dip it off immediately; then you will find no discoloration. An iron kettle will discolor wax a great deal less than a receptacle of galvanized iron, or, in fact, of almost any other metal except the plain iron. The important thing is to see that the wax is dipped out and cooled as soon as it is melted. Wax kept hot for an hour or two, or longer, will invariably be discolored. The longer it is kept hot, the darker it will be.—ED.]

CONVERSATIONS WITH DOOLITTLE

Continued from page 9.

or those produced from queens reared from an imported mother, allowing these queens to mate with whatever drones there were in and about the apiary, as such crossing would give additional vigor to an already vigorous race of bees.

Allow me to sum up this matter briefly from a standpoint covering a period of nearly forty-five years: Except for the breeding of queens for market, I would say, first have your queens mate with drones as distantly related to your queen mother as possible; second, use queens as closely related to imported Italian stock as possible, where working for extracted honey, for there are no bees in the world, in my opinion, that excel those one generation from imported stock for large yields of extracted honey. Third, where white capping of combs becomes one of the great objects to work for, as is the case where working for section honey, choose the golden Italians on account of their qualities in that direction. These bees are in no way second to Italians from imported stock as to their honey-gathering qualities. They simply use, of that gathered, only enough to give the nice white cappings required when producing *fancy* section honey."

Our Homes

A. I. Root

Let him that thinketh he standeth take heed lest he fall.—I. COR. 10:12.

Create in me a clean heart, O God, and renew a right spirit within me.—PSALM 51:10.

He that ruleth his spirit is better than he that taketh a city.—PROV. 16:32.

Every little while I get to thinking I have got past at least *some* of my weaknesses of early life, and that I am now, in advanced age, making a pretty good record as a citizen and as a Christian; but it almost seems sure, after such reflections, that Satan gives me another pretty severe "tussle." I think that one of my experiences of recent date may be helpful to some of you.

This is the third winter I have been running the Sears automobile I have told you about, and it has given me more satisfaction during the past six weeks than ever before. It has not been to the shop once, for Wesley and I have been able to make all repairs needed. After standing untouched during the whole summer, with gasoline left in the tank, it started right off promptly.

Now, while the *machine* has been all that could be desired, the compound pump sent with it, for pumping up the tires, has been giving a lot of trouble. It has for some time failed to pump up the tires *real hard*. Ernest always scolds because I let my tires get down so soft. I tell him there is less "jolt" in riding; but he maintains (and justly) it is harder on the rubber tires, and takes more power. In turning corners it is also much harder work if a tire is partially flat, because a larger surface has to twist round on the pavement or sandy road, and this twisting also wears the rubber tire much faster. First, oil worked over into the small rubber air-tube of the pump, cutting the rubber so it clogged. A big wire pulled through several times removed two bits of rubber. Then I had trouble and worry in finding how to get the double cylinder apart. When I finally got at the plunger, one leather was worn through. Each time I found some defect I was "dead sure" I had remedied the trouble; but each time the pump failed to push up the tires *good and hard*. This pump that cost enough to do the best kind of work puzzled me, so I lay awake nights thinking about it. Why not take it to a garage? There are several reasons. We have a garage of our own in Medina, and I have been in touch with mechanical work all my life, and it hurts me to give up beaten. Very likely there is *some* foolish pride right along here.

It was my 74th birthday, but I had forgotten it at the time. I had worked in vain at the

pump the day before, and was at it again until nearly noon. My nervous hands were covered with black grease, my back ached, and I was conscious I was getting in a bad frame of mind. That "alarm bell" was getting louder and louder. I was vexed and impatient. I didn't want any dinner, nor any nap before dinner. On this day *particularly* it was incumbent on me to be pleasant and smiling to Mrs. Root when I sat down to the dinner that she had taken unusual pains in preparing. A drinking man once said to me, "Mr. Root, I am on a horse I can't manage. When he goes I *have to go*." I told him that "horse" would land him in a *drunkard's* grave, and it did, not long after. As I struggled with that rebellious spirit I wondered if I, A. I. Root, was not in danger of being in a like predicament. Suppose a visitor or a group of visitors should call as they do almost every day, wanting to see and shake hands with the author of the *Home papers*. The thought of it almost made the chills run down my poor tired back. I rushed to my little room upstairs in our home where I take my daytime naps, and tried to sleep, but sleep wouldn't come. I had not yet "let go" of the pump, and, in fact, I could not get it out of my mind. I jumped out of bed, knelt down as I have done many times before, when, all at once, that wonderful prayer, that *beautiful* prayer of David's, occurred to me, and I prayed, "Create in me a clean heart, O God, and renew a right spirit within me."

Were ever words before framed to fit so exactly such a case as mine? I said mentally, "Now I can sleep;" but Satan was not ready to give up just yet. I remember thinking the prayer was not going to do any good, after all, *this* time. Let me pause right here. Unbelief and doubt are the result and a part of *all* sin. They go along together. But now listen: In spite of my *still* cherished rebellious thoughts and unbelief, the dear Savior, with his great patience and infinite love, had mercy on me.

In his arms he'll take and shield thee;
Thou wilt find a solace there.

That is just what happened. Oblivion came—blessed oblivion! My troubles were forgotten—wiped out. In half an hour I awoke, "clothed and in my right mind," and went down to dinner praising God, and the good wife who had provided such a beautiful birthday dinner.

In the afternoon I discovered the leather I was using was too thick and hard. In

this kind of pump, where the plunger takes the place of valves also, a very thin soft yielding leather is needed, and in a little time the pump was sending out a stream of air *for certain*, and with force enough to make every rubber tire on each of the four wheels "stand up" so only a very small spot, comparatively, touched the cement floor; and when turning corners, especially on hard-surfaced roads, but a touch on the steering lever is all that is needed.

There is a great lesson for poor frail humanity in our last text. Great rulers and great generals must, as a rule, first learn self-control before they can expect to be chosen for important offices. One who

allows himself to push ahead when he is vexed and impatient,* as I did, is a poor specimen of Christian, to say nothing more. I kept thinking I would have it all right in a few minutes, until I was too tired and nervous to do *any* thing well; and my old arch enemy saw his chance. While I think of it I thank God that it was only an inanimate object that I was vexed with, and not any fellow-traveler in this world of sin. I also thank God that, when I realized my "armor" had dropped off, and seemed to be lost, I made haste to apply to "the Lamb of God that taketh away the sin of the world."

Poultry Department

"THE HIGH COST OF LIVING—FOR CHICKENS," AND SOME OTHER MATTERS.

The above has been on my mind a good deal for some time past, and Mrs. Root and I have had some "jangles" about it because, as she insists, I tell all the pleasant things about chickens and say but little about the cost (especially down here) of wheat, corn, and oats. I am paying now for each 100-lb. sack \$2.15, \$1.95, and \$1.90. I could buy a little cheaper in quantities, say in the city of Tampa, but I could not readily turn my eggs every day as I do at the grocer's toward my grain, which is delivered as I need it right to my granary in the center of the "convergent poultry-yards." But before we get down to "figures" let us read the letter below from a good brother who seems to be "worried" in regard to the matter:

Mr. A. I. Root.—I have been reading your Poultry Department in GLEANINGS for some time; but there is one important thing that I should like to know. What is the average cost of feeding a hen for a year? I have heard that \$1.25 or \$1.50 will do it, but Green's *Fruit Grower* says that a healthy hen will eat \$8.65 worth of grain in a year. If that is true I will get rid of my chickens, for there is no profit in them at those figures. I rely on your telling us in GLEANINGS.

Cokeville, Pa., Nov. 21.

JOHN MAJOR.

If Green's *Fruit Grower* said as above, without any qualification, I should say they were careless, to say the least. It is possible that a large hen, laying 200 or more eggs a year, shut up (say on the Philo plan), and having little but grain, and the grain bought in small lots at the grocer's (at a big price), *may* eat a cent's worth a day; but I am sure not on the average. Look up the reports of our egg contests in the different States, and see what they have published in regard to cost of feed.

Our own chickens have a range of about five acres (if they care to go so far), and my feed bill with Buttercups and Leghorns for *grain* (wheat, corn, and oats) is only about $\frac{1}{4}$ of a cent a day, and this result was obtained where the grain was in galvanized tubs when they all helped themselves all day long. With my flock of 80 hens and ducks, half a dozen eggs (40 cts. per dozen at the grocery), 20 cts., paid for grain for the whole flock. Now, before a lot of you rise up in protest, listen. We buy oats every day; get lettuce and cabbage not fit to ship; provide Bermuda grass "pasture," and last, but *not* least, give them nearly all the ground bones and meat they care for, and the "chicken bones" are *given* me at the combined grocery and meat market in consideration of giving them our trade. A half-dozen eggs pays for all *cash* outlay. If you get three dozen eggs a day, which is certainly a very moderate estimate, you have a dollar clear every day for properly caring for your fowls.

Just one thing more. If the droppings from the roost are cleaned up every day they are, down here in Florida (where stable manure is \$3.00 a load), worth quite a little.

Somebody may ask if it is not pretty extravagant to provide five acres of "run" for 80 ducks and chickens. Yes, it is; but the five acres cost me only \$150 per acre, and just *now* the assessor appraised them at \$400. Then comes the question, "Why not raise grain or something else for chickens on this idle land so as to avoid these

* Giving way to nervous impatience, especially when assisted by drink, is probably the cause of a lot of the murders, followed by suicide, that are now chronicled in almost every issue of our daily papers. When Satan gets his victim well started he crowds him ahead with relentless haste, making the most of his opportunity.

expensive grain-bills?" I have for years been searching among "God's gifts" (for the people here in Florida) for something that will grow here and take the place of grain. May God be praised, for my search has been rewarded; and may he be thanked, also, for our Department of Agriculture that helped me to get it. Listen:

Just before going back north last April my good friend Bannehr, of Manatee (a beekeeper), gave me some canes and roots of cassava, and told me to plant them, saying that the roots were "good for chickens," etc. Now, to illustrate how we often neglect and pass by some of God's most precious gifts (sweet clover?) I shall have to own up that, after throwing the roots to the chickens, and finding they didn't seem to notice them, I let the canes lie around uncared for until Wesley said he knew how to plant them, and so he cut them up and planted perhaps a dozen pieces that looked about like corncobs. When we were planting dasheens the cassava was just peeping above the ground, and I told Wesley he might as well chop them off, as I didn't believe they were of any use. Well, either Wesley didn't hear or he didn't get around to it for some reason, and I forgot all about the cassava until we got here a few days ago, when all at once I said:

"Why, Wesley, what are those great branchey *trees* down among the dasheen?"

"Why, Mr. Root, that is the *cassava*."

"Do you mean they have made all that growth in the past six months?"

By my direction he dug some roots as big as my arm, and a yard long or more. After taking some pains to teach the chicks, they soon ate them with avidity—no cutting up nor any preparation needed. Then I sent to Washington for a bulletin (No. 167) which I recalled having seen. Let me give you some clipping from said bulletin:

If the entire crop is not wanted for use during the winter following its growth, a part of it may be left in the ground for another season, as the roots will continue to grow several years if not disturbed. Roots which have grown two or more seasons often reach an enormous size, sometimes as much as 8 feet in length, and forming clusters weighing more than 100 pounds; but they become more hard and woody than at the end of the first season, and so are not as good for the manufacture of starch or for feeding as those which have grown only one season. When it is known beforehand that a part of the crop is to be kept until the second season, it is better to dig alternate rows, so that the plants remaining will be less crowded.

MEANS OF REMOVING FROM THE GROUND.

As the roots are of considerable size, often from 3 to 4 feet in length by 2 or 3 inches in diameter, and as they grow in clusters of from 4 to 8 on each stalk, a single cluster often weighing from 20 to 30 pounds, digging can not be done with a plow, as sweet potatoes are dug, but must be done by hand.

FOR "GQ"

Dr. Stockbridge states, in Bulletin No. 49 of the

Florida Experiment Station, that when five lots of pigs were fed a period of seventy-five days, cassava gave a greater net profit and a greater percentage of gain in weight than did either corn, chufas, or peanuts, and a greater net gain in weight than did any except corn. The cost of the increased weight of the cassava-fed pigs was only 1.04 cents per pound, while the increase of the corn-fed pigs cost 3.06 cents per pound. In these tests the cassava was charged to the pigs at the rate of \$6 per ton and the corn at 60 cents per bushel, these prices being somewhat more than the actual cost of growing the cassava and less than the usual market price of corn in Florida.

FEEDING TO POULTRY.

In localities where it is grown, cassava is used more commonly than corn in the feeding of poultry. It needs no preparation before feeding, as the roots are so tender that they can be eaten readily, and poultry eat them as greedily as do other kinds of stock. When fed alone cassava makes hens so fat that they do not lay well, as is the case when they are given an exclusive corn diet, so it is better to mix it with wheat, oats, or some similar nitrogenous feed. It is unsurpassed when fowls are to be fattened for market, as it makes a rapid increase in weight with very little expense.

One poultry-raiser at Orlando, Fla., who keeps from 500 to 700 fowls, states that he has fed cassava since 1885, and that it is the most inexpensive as well as the most satisfactory feed he can find for use in the place of corn, though it is not so complete a food as is needed by growing chickens and laying hens. Others who have used it for feeding poultry make similar statements; and it is the general experience that, when it is used as the principal food, from one-third to one-half a feed of wheat or oats should be added to the ration, and that the feeding of cassava saves fully one-half the usual cost of corn.

Our cassava is growing on ground that was for several years a chicken-yard. As it is desirable to change yards, a very limited piece of ground will grow the roots, and, after well started, the chickens may be let into the yard again. If I were to try to grow grain of any kind a horse would be needed. While it is a very small job to prepare and plant cassava by hand, and the harvesting for chickens is nil, as the great roots grow just under the surface, and the spreading branches soon keep down all weeds, and even Bermuda grass gives up trying to grow under rank cassava, the roots are almost equal to Irish potatoes for table use.

Mrs. Root will scold if I stop here without telling the other side, so here goes:

"THE OTHER SIDE OF POULTRY" IN FLORIDA.

It is the long wet summers, especially for those who live here only in the winter time. If you will turn back to p. 356, May 15, 1913, you will see that, when I left for Ohio, I had 125 chickens, none over four months old, and about 25 ducks; 150 fowls in all. I offered a neighbor all the duck eggs and all the roosters when they were big enough to sell for looking after them during the summer, I to pay all the feed-bills. What did the feed cost for the six months? Just about as many "dollars"

as I had ducks and chickens when I arrived here in November. When I left in April I had a credit of about \$38.00 at the grocery. It took all this and almost as much more to feed roosters and all. Sorehead or some similar trouble took off a dozen or two, and "varmints" a few more. Laying hens could be left with neighbors cheaper, it is true; but a lot of "youngsters" are "no good" for eggs, and often a "heap" of trouble. It would have been as cheap or cheaper to have "sold out" in the spring, and bought more in November; but who wants to sell young pullets just beginning to lay? Another thing, I wanted my especial cross of Buttercups and Leghorns. If I stayed here the year round, like neighbor Abbott, it would be much cheaper; but even he (who has several hundred laying hens) begins to think bees rather more profitable. They don't need corn, and seldom need sugar. While I think of it, neighbor Ault (the man among the big dasheens) in some of his apiaries here near Bradenton secured last season about 200 lbs. per colony. But this was an apiary of only about 25 colonies.

Just a word more about the chickens. I think our Experiment Stations find the large breeds need *more* grain than the Leghorns; but, if I remember, in one egg test the Rhode Islands Reds came very near taking the prize, and neighbor Ault says he had a flock of reds that, while they had access to a field of alfalfa, gave a big egg yield and had almost no grain at all. This reminds me that three laying hens, Rhode Island Reds, were kept all summer just for their eggs; and while eggs were 50 cts. a dozen in November I several times had an egg from each red hen. Let us go back to that letter from friend Major before closing.

Friend M., let us suppose you have no lettuce, cabbage, nor even a field of alfalfa, and that it does cost a "whole cent" to feed your hen one day. If she lays an egg that is worth *four cents* in the market, or *more*, can't you stand it?

DO THE HIGH-SCORING CHICKENS AT FANCY PRICES GIVE US THE BIG-LAYING STOCK?

An effort has been made to show that our great layers in the "egg-laying contests" are the outcome of the high-scoring standard fowls; but here is something that does not exactly agree if I understand it correctly. The clipping is from the *Pacific Poultryman*.

Another claim to the world's championship for egg production has just been put forward. Professor Dryden, of the Oregon Agricultural College, gives a record of 291 eggs in a period of one year by a hen of mixed blood, owned by the college, which he claims is the best performance in the world to date.

I need hardly add that we have probably no better authority than Prof. Dryden. The above hen was probably a first cross, and, very likely, from standard breeds. See p. 624, Sept. 1.

GRASSHOPPERS AS A SUBSTITUTE FOR MEAT SCRAPS FOR POULTRY.

In the *Ladies' Home Journal* for November is a letter from a widow who did wonderful things with poultry by feeding them grasshoppers that she trapped, and then killed with formaldehyde. The account does not tell where she lives, but it says she trapped "eighty odd bushels" in two weeks, and she says it answers the place of ground bones or meat scraps wonderfully well. I confess that several times when I read of the grasshopper scourge in the Southwest I wondered if they could not be killed and dried so as to be preserved for winter rations for poultry. Can any of our readers tell us whether the above is fact or fiction?

MUSTARD FOR CHICKENS AND MUSTARD FOR TABLE USE; WHERE ARE THE MUSTARD-FIELDS?

I see in one of A. I. Root's articles he mentions receiving a barrel of ground mustard for his chickens. Now, I should like to know if mustard is grown anywhere in the United States in a commercial way; and if so, could there not be a way to get in communication with the growers, and order from them?

Town Line, N. Y., Oct. 15. J. H. CALKINS.

Perhaps The French Co., of Rochester, N. Y., who advertise mustard for poultry, can tell us where the seed is grown, that beekeepers may locate near the mustard-fields, to the advantage of the grower as well as that of the beekeeper.

BANEFUL DRUGS; A WORLD-WIDE WAR AGAINST THEM.

Another evidence that God's kingdom is coming on earth is that the nations of the world are uniting in a war against opium and other baneful drugs. See the following, which we clip from the Cleveland *Plain Dealer*:

Dr. Wright reported that up to date thirty-five governments have signed the opium convention, including the thirteen nations that joined in the first conference in Shanghai after the movement had been initiated by the United States. Some of these countries, notably Great Britain and Germany, are withholding their ratifications until the last moment, taking the ground that to be really effective the convention must have the unanimous support of all nations. So far twenty-six governments have agreed to deposit their ratifications, and they probably will be received at The Hague before December 31 next.

All of the signatory powers are to meet at a third conference at The Hague after December 31, next, to agree upon the date when the prohibition of the use of opium and other baneful drugs shall go into effect throughout the world.

High-pressure Gardening

DASHEEN—MORE ABOUT THOSE IN THE PICTURE, P. 784, NOV. 1.

When neighbor Ault was digging that big hill of 20½ lbs., I picked up one of the long leaf-stalks he cut off, and took it home to see if that would make a soup or stew as good as the little shoots. I took it, leaf and all, and Mrs. Root used the whole thing for soup, and it made about the best dish of dasheen we have had. Of course we peeled off the outside covering near the ground. Just think of it, friends! Suppose you could take a tall stalk of corn that had given a big crop already, and make two or more good meals of one "cornstalk!"

I have mentioned the fact that he used lime as well as stable manure. Well, he has just given me an additional fact in regard to his astonishing yield. When he came on the place he found a heap of little shells his predecessor gathered for some reason or other. Having no use for them he used them for stable bedding. After the horse had tramped them up fine he shoveled the manure and all around the dasheen. I wish our experiment station would tell us if these mashed shells might have had any thing to do with this enormous growth of the dashen.

DASHEEN DATA—DASHEEN IN OHIO, ETC.

Dasheen purchased from the Brooksville Development Co., May 1, 1913, arrived and were planted May 10 on different kinds of ground. All grew and were up June 1. Dasheens planted on clay soils failed because of lack of moisture. One hundred and fifty tubers planted on sandy black loam did exceedingly well. Dug first mature tubers from them Sept. 1, 1913. They were entirely matured Sept. 15, dug on that date, the yield being six pecks.

None of these received irrigation; those receiving irrigation were frozen Sept. 22, 23, unmaured.

The average height of plants was forty inches; number of leaves about twelve. Dasheen planted here on suitable ground, and given ordinary cultivation, will mature.

Cedarville, Ohio.

HARRY POWERS.

The above, with sample tubers, was submitted to the Department of Agriculture, and below is their reply:

Mr. Harry Powers:—Your letter of October 14 and the package of dasheens was received several days ago, and we desire to thank you heartily for the same. I have tested a few of the tubers on my table, and find them of very good quality. The quantity of tubers which you secured would hardly warrant your continuing the culture of the dasheen in Ohio, from the commercial standpoint especially, as the corms and tubers are very small; but if by irrigating and fertilization in the first half or two-thirds of the season you could stimulate the growth of the plants, you might obtain a considerably more satisfactory yield. It would be, of course, necessary to withhold water toward the close of the season, in order to allow the tubers to ripen. I may add that stable manure is probably the best form of fertilizer used.

I have to thank you again for sending us your

report, and to congratulate you on the degree of success which you have attained. A smaller number of plants started indoors a month or more earlier, and then set out, would no doubt give a yield as large or larger.

R. A. YOUNG,

Washington, D. C., Nov. 5. Scientific Assistant.

Permit me to suggest that the irrigated tubers that did not mature would have made an excellent stew, as I have several times described, and we prefer this stew of immature tops and tubers to any other way of cooking the dasheen. In regard to yield, on our Medina stiff clay soil we had about three bushels of tubers from 50 plants, some of them very small indeed. Now hold your breath and listen: I have just been over to neighbor Ault's, and saw the corm and tubers from one of his best hills (see picture on p. 784, Nov. 1). After being dug and washed there were 20½ lbs., the product of one small shrunken tuber, in just about 8 months from planting. Besides a good dressing of stable manure, Mr. Ault says he sowed about a peck of lime and worked it in on his patch of little more than a rod square. It may transpire that, like the clovers, lime is the thing. One more valuable thing about the dasheen: Unlike the Irish potato, light, and even strong sunshine, improves the tubers instead of doing injury.

We clip the following from the *Manatee River Journal*:

That the dasheen is a coming food product of Florida is borne out by reports made by parties who have been experimenting in growing it. Mr. A. I. Root, of Medina, Ohio, who spends his winters in Bradenton, and has just recently returned, dropped in a few days ago and showed us a letter from Mr. Young, of the Department of Agriculture, and called attention to articles from Bradenton upon the dashen in his paper *GLEANINGS IN BEEN CULTURE*. The following is the letter:

Mr. A. I. Root:—I have recently returned from a trip to Hawaii, California, and the Southern States, to study the taro and the dasheen. I find your letters of July 21 and July 22, with proof-sheets of your articles on the dasheen. I wish to thank you for these and the continued interest you are taking in the introduction of this vegetable, which we believe will eventually prove of much value, especially in the Southern States. * * * I was in Bradenton early in October, and was greatly pleased with the dasheens grown by your neighbors, Mr. Harrison and Mr. Ault. They were the best I had seen up to that time, outside of our own planting at Brooksville, though the next day I saw a three-acre commercial field a few miles from Tampa that had made a remarkable growth. This was in much soil that had been previously used for trucking.

R. A. YOUNG, Scientific Assistant.
Washington, D. C., Nov. 7.

In the November issue of *GLEANINGS* a letter and a half-tone picture of a mammoth dasheen is a contribution from Arthur E. Ault, of Bradenton. The plant pictured was between six and seven feet high, and he says the soil upon which they grow is a well-fertilized humus-filled sand, and that he ridged the soil with furrows six feet apart, planting two rows

of dasheens to each ridge. He says the soil is moist, and there has been water in the furrows nearly all summer, and tubers were then forming rapidly. Mr. Root adds that dasheens are fair eating before maturity, but not at their best until fully matured, although the young shoots and tender leaves are all right, and make a good substitute for mushrooms or oysters, with a few crackers added.

As experiments indicate that the dasheen is going to prove prolific in South Florida soil, information about it is interesting at this time, though limited to experimental planting.

Later.—A mammoth dasheen is on exhibition at the office of Messrs. Wyman & Green, the largest that we have had the pleasure of inspecting. It is true that we have seen only two, the other being the one that was recently placed on exhibition at the *Journal* office; but this one is so large and well developed that we conclude it must be the limit. The hill weighed 19½ pounds when first taken out of the ground, and removing the small tubers it weighed 17½ pounds. They were grown by the Mr. Ault already mentioned. The largest before reported was 18 pounds grown up near Brooksville at the Government plant.

Mr. Ault's yield of dasheen, as given above, would be just about 1000 bushels per acre, which is more than the Department of Agriculture has ever mentioned, even on small areas. Perhaps I should explain that he put on the plot quite a liberal dressing of stable manure which his chickens scratched into the ground quite thoroughly. He also worked ashes in between the rows. Aside from its great value as a table vegetable, it will probably be valuable for stock. Our chickens eat the large center corms with avidity. Mr. Ault's place is just over the fence from our own five acres.

The dasheen grown here on our place needs no sal-soda nor soda of any kind (to counteract the "acidity" mentioned), either in washing or cooking. The tubers for baking need only a brushing with a stiff brush before they are put into the oven, and for stews the stalk and stems, with small green tubers, need only rinsing and pouring the water off, as mentioned on p. 740, Oct. 15.

DASHEENS IN THE GREENHOUSE OR IN A BOX IN A WINDOW.

Our friends who are anxious to test the new food-plant can start them any time in the winter as they do tomato, cabbage, and other plants; and when spring comes, put them out when danger of frost is past. As they will grow with proper care higher than your head, they need a long season. Remember they are delicious food from the time they are an inch high until they are above your head, and every bit of the plant is edible, both above ground and under ground. My impression is, after the tubers are well seasoned they can be mailed safely all winter. We are testing the matter now, and will report. I hope some seedsman or some one else will soon advertise them by

parcel post. I mailed 3 lbs. to Medina, and below is Huber's report in regard to them.

The package of dasheens reached me safely yesterday morning. No danger of any frost, for the weather has been very warm here for the last week or so. We baked some to-day. I ate five, and we all liked them very much. They remind me of roasted chestnuts, although a little drier, and flavor somewhat less pronounced.

ROSELLE, ANOTHER OF "GOD'S GIFTS."

Some time in the summer our good friend Reasoner, of the Royal Palm Nurseries, Oneoco, Fla., sent over to our place about a dozen Roselle plants which Wesley planted and cared for until we arrived in November, when we found them covered with "fruit." You might not call it fruit by the look; but we recently had cranberries and roselle both on the table at once, and, although they taste and look very much alike, I much prefer the roselle. I am sure they can be grown in the North if started in a greenhouse like tomatoes, for some of our plants are full of fruit when less than a foot high. See clipping below from the *Florida Grower*.

Roselle, or Jamaica sorrel, or lemonade plant, as it is often called in Florida, is one of the hibiscus family. The flowers are solitary with a red and thick calyx. These calices, when cooked, make an excellent sauce or jelly, almost identical in flavor and color with the cranberry of the North. The leaves make an excellent and refreshing drink. It is hardly necessary to give recipes for the above. The calices are removed from the ovary and used in the usual way, same as northern cranberries. A salad may be made of the stems, leaves, and calices just as a turnip salad. A syrup that can be used for coloring purposes can be made of calices or stems and leaves, boiled in the ordinary way and sealed in bottles for future use. To make the jelly, use less than the ordinary proportion of sugar; it is excellent for cake, but is not as firm as guava jelly.

I think you can get seed, and perhaps plants, of Reasoner Bros., Oneoco, Fla. If you want to know about the wonderful fruits and plants that can be grown in Florida write for their beautiful new catalog.

SHALL WE WIN BY "FIELDS OF BLOOD" OR BY THE "SWEAT" OF "HONEST LABOR"?

Here is an extract from an Armenian paper which states a truth that those who clamor for vast armaments should try to absorb into their belligerent minds: "It is an old and dead belief that a nation is as strong as the powerful army she possesses, and that she is as vital as her cannon is large. The fate of nations is built, not on the field of blood, but on that of sweat. It is formed in factories, in the depths of mines, on farms, in temples of art and science, through reformed and just administration, through the creative desire which runs after perfection, and which leads the nations toward moral greatness and material prosperity."

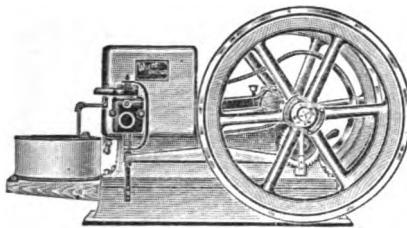
A hearty AMEN to the above, which we clip from the *Farm Journal*.



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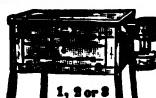


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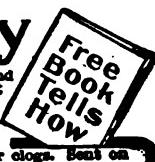
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YIELD \$500 to \$1200 per acre under the Kellogg sure-crop method. Our beautifully illustrated 64-page book gives the complete Kellogg Way and tells all about the great Kellogg plant farms in Oregon, Idaho and Michigan. R. M. KELLOGG CO. Box 400, Three Rivers, Mich.

SARFF'S 5000 bushel crop 1912. Tested and sure to grow. Finest quality. 20 leading varieties. Also Seed Oats, Barley, Grass Seed, Potatoes, etc. Samples on application. 1100 acres. Be sure to get our new catalog. Write today. W. N. Scarff, Box 67, New Carlisle, O.

YOUR HENS YOUR FARM YOUR MONEY

and Hens for Market or Show, containing Pictures of 30 Poultry Houses; tells cost to build; describes AMERICA'S LARGEST LINE OF INCUBATORS AND BROODERS—\$2.25 to \$48 each. Write today.

Robert Essex Incubator Co., 81 Henry St., Buffalo, N. Y.

New Easier Better Spraying

Write For Free Book
How to save money, labor,
time. Banish blight, disease
and insects from orchards, etc. Use

Brown's Auto Spray
Style shown has 4 gal. ca-
pacity—non-clogging Auto
Pop Nozzle. 40 other styles
and sizes—hand and power outfits.

E. C. Brown Co., 20 Jay St., Rochester, N. Y.



Ten Days' Free Trial

allow on every bicycle we sell. We Ship on Approval and trial to anyone in the U. S. and prepay the freight. If you are not satisfied with the bicycle after using it ten days, ship it back and don't pay a cent.

FACTORY PRICES pair of tires from anyone at any price until you receive our latest Art Catalog of high grade bicycles and sundries and learn our unheard-of prices and marvelous new special offers.

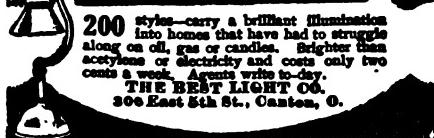
IT ONLY COSTS a cent to write a postal and **FREE** by return mail. You will get many valuable information. Do Not Wait; write it NOW!

TIRES, Coaster-Brake, rear wheels, lamps, parts, repairs and sundries of all kinds at half usual prices.

MEAD CYCLE CO. Dept. G113 **CHICAGO**



THE BEST LIGHT



200 styles—carry a brilliant illumination into homes that have had to struggle along on oil, gas or candles. Brighter than acetylene or electricity and costs only two cents a week. Agents write to-day.

THE BEST LIGHT CO.
301 East 5th St., Canton, O.

PURE SWEET \$1.00 CLOVER 60 Per Bu.

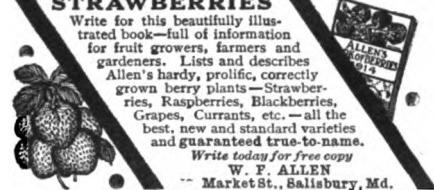
BIGGEST MONEY-MAKER KNOWN—INVESTIGATE

The greatest forage plant that grows. Superior to all as a fertilizer. Equal to Alfalfa for hay. Exceeds for pasture. Builds up worn-out soil quickly and produces immense crops, worth from \$50 to \$125 per acre. Easy to get started, grows everywhere, on all kinds of soil. Don't delay writing for our Big 76-page free catalog and circular giving full particulars. We can save you money on best tested guaranteed seed. Sample Free. Write today.

A. A. BERRY SEED CO., Box 466 CLARINDA, IOWA

STRAWBERRIES

Write for this beautifully illustrated book—full of information for fruit growers, farmers and gardeners. Lists and describes Allen's hardy, prolific, correctly grown berry plants—Strawberries, Raspberries, Blackberries, Grapes, Currants, etc.—all the best, new and standard varieties and guaranteed true-to-name.



Write today for free copy
W. F. ALLEN
Market St., Salisbury, Md.

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"Kant-Klog" Sprayer

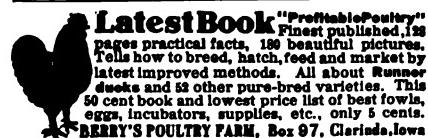
gives twice the results with same labor and fluid. Also for spraying trees, vines, vegetables, etc. Agents Wanted. Booklet free. Rochester Spray Pump Co., 207 Broadway, Rochester, N. Y.



40 ACRES solid to superb. Progressive Americans and other everbears. Get acquainted after for testing. Send us 100 for mailing expenses, and we will send you 6 high quality everbearing plants (worth \$1) and guarantee them to fruit all summer and fall, or money refunded. Catalogue with history **FREE** if you write today.

THE GARDNER NURSERY CO.

Box 130 OSAGE, IOWA



Latest Book "Profitable Poultry" First published, 128 pages practical facts, 120 beautiful pictures. Tells how to breed, hatch, feed and market by latest improved methods. All about Runner ducks and 52 other pure-bred varieties. This 50 cent book and lowest price list of best fowls, eggs, incubators, supplies, etc., only 5 cents.

BERRY'S POULTRY FARM, Box 97, Clarinda, Iowa



NEW BINGHAM BEE SMOKER

Patented

The New Bingham Bee Smoker

leads the procession in improvements, such as metal legs, turned edges, metal binding on bellows, new spring on the valve of the bellows; self-cleaning creosote-burning cover sets on inside of fire-pot. . . . Try one this season.

Smoke Engine, 4-inch stove, \$1.25

Doctor, 3½-inch stove, 85

Conqueror, 3-inch stove, 75

Little Wonder, 2½-in. stove, 50

Two larger sizes with metal legs and hinged cover, in copper, 50c extra.

Parcel-post shipping weight, 2lbs. each.

For sale at your dealers or direct.

**A. G. WOODMAN CO.
GRAND RAPIDS, MICH.**

PAINT WITHOUT OIL

Remarkable Discovery that Cuts Down the Cost of Paint Seventy-five Per Cent.

A Free Trial Package is Mailed to Every One Who Writes.

A. L. Rice, a prominent manufacturer of Adams, N. Y., has discovered a process of making a new kind of paint without the use of oil. He calls it Powdrpaint. It comes in the form of dry powder and all that is required is cold water to make a paint weather-proof, fire-proof, and as durable as oil paint. It adheres to any surface, wood, stone, or brick, spreads and looks like oil paint, and costs about one-fourth as much.

Write to Mr. A. L. Rice, Manufacturer, 8 North St., Adams, N. Y., and he will send you a free trial package, also color-card and full information showing you how you can save a good many dollars. Write to-day

BETTER LIGHT from KEROSENE
TEN DAYS FREE
Beats Electric or Gasoline
SEND NO MONEY

"Without sending a cent you can use this wonderful, economical oil light 10 days Free, then return at our expense if not satisfied. Gives powerful white incandescent light, burns over 50 hours on one gallon Kerosene (coal oil). No odor, smoke or noise, simple, clean, won't explode. Guaranteed. We want one person in each locality to refer customers to. Write for 10-DAY FREE TRIAL AGENTS OFFER—agents' wholesale prices WANTED and learn how to get ONE FREE. Make money evenings and spare time. One farmer cleared over \$500 in 6 weeks. Exclusive territory given. MANTLE LAMP CO., 360 Aladdin Bldg., Chicago, Illinois

20 Reasons Why You Should Investigate the SANDOW Kerosene Stationary ENGINE



It runs on kerosene (coal oil), gasoline, alcohol or distillate without change of equipment—starts without cranking—runs in either direction—throttle governed—hopper cooled—speed controlled while running—no cams—no valves—no gears—no sprockets—only three moving parts—portable—light weight—great power—starts easily at 40 degrees below zero—complete, ready to run—children operate them—5-year ironclad guarantee—15-day money-back trial. Sizes 2 to 20 horsepower.

Send a postal today for free catalog, which shows how Sandow will be useful to you. Our special advertising proposition saves you one-half cost of first engine sold in your county.

Detroit Motor Car Supply Co.,
72 Canton Ave., Detroit, Mich.

Large Eggs
now and all winter, too, if you feed your hens The Humphrey Way—fresh bone prepared in a

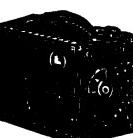
HUMPHREY BONE CUTTER
with its Always-Open Hopper. If you have 10 hens or more, write for our offer and a copy of our profitable book, "The Golden Egg."
HUMPHREY, MINE ST. FACTORY, JOLIET, ILL.

10 Days' Free Trial

for you to prove that all kinds of meal, oats or corn, can be ground the fastest and finest on . . .

QUAKER CITY MILLS

We pay the freight. 23 stoves—hand power to 20 h. p. Write for catalogue, also for barns in farm supplies. The A. W. Street Co., Dept. E, 3748-50 Filbert St., Philadelphia, Pa. Dept. G, 2783-11 Ss. Ashland Ave., Chicago, Ill.



GIVEN TO EVERY BOY AND GIRL. We give a fine Eureka Camera and complete outfit, plates, chemicals, etc., with full instructions. Just send your name and address, we send you 24 papers Gold Eye Needles. Sell 3 papers for 10c., giving a Thimble free. When sold send us the \$1.20 and the Camera and complete outfit is yours. Address GLOBE CO., Dept. 725, Greenville, Pa.

BROWN FENCE
Direct from factory, freight prepaid. Over 100 styles, all dimensions, every purpose, all Dovetailed. Send for Catalog and Sample to test. All Freight, Mail postal now, to THE BROWN FENCE & WIRE CO., Dept. 81, Cleveland, Ohio.

Classified Advertisements

Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the Classified Columns or we will not be responsible for errors.

HONEY AND WAX FOR SALE

See our special sale of honey on advertising page 11 of this issue. THE A. I. ROOT CO., Medina, O.

Bronzed honey labels, 1000 for 80 cts.; others, 60 cts. per 1000. PEARL CARD CO., Clintonville, Ct.

FOR SALE.—White-clover honey, thoroughly ripened; A1 quality. E. C. PIKE, St. Charles, Ill.

FOR SALE.—Choice extracted honey in new 60-lb. cans at 9 cts. per lb. J. P. MOORE, Morgan, Ky.

FOR SALE.—Tupelo honey, barrels and cans. Fine and white. Sample, 10 cts. I. J. STRINGHAM, 105 Park Place, New York.

FOR SALE.—Finest quality clover and buckwheat honey in 60-lb. cans. C. J. BALDRIDGE, Homestead Farm, Kendal, N. Y.

FOR SALE.—White-clover honey in 60-lb. cans. Ripened on the hives. There is nothing finer in every respect. J. F. MOORE, Tiffin, Ohio.

FOR SALE.—Several tons of raspberry-milkweed honey (mostly milkweed) in new 60-lb. cans (two in case), a very fine honey. Write for price. Small sample free. P. W. SOWINSKI, Bellaire, Mich.

FOR SALE.—White-clover honey, none better. In 10-lb. pails, six in a case, at \$6.50 per case; 5-lb. pails, 12 in a case, at \$7.00 per case; ½-lb. glass jars, 24 in a case, at \$2.80 per case. Sample, 4 cts. Also in 60-lb. cans, very nice amber honey.

HENRY STEWART, Prophetstown, Ill.

Buyers of honey will do well by sending for the January numbers of *The Beekeepers' Review* containing the name and address of over 100 National members having honey for sale. It is free for the asking. THE BEEKEEPERS' REVIEW, Northstar, Mich.

FOR SALE.—Blended raspberry, buckwheat, and goldenrod honey; has a thick body and a strong and very rich flavor. Put up for sale in new 60-lb. tin cans. Price \$5.00 a can. Sample by mail, 10 cts., which may be applied on an order for honey.

ELMER HUTCHINSON, Pioneer, Mich.

HONEY AND WAX WANTED

WANTED.—A limited quantity of choice, white, extracted honey. H. C. AHLERS, West Bend, Wis.

WANTED.—Comb, extracted honey, and beeswax. R. A. BURNETT & CO., 173 So. Water St., Chicago.

WANTED.—Comb honey and beeswax. State what you have and price. J. E. HARRIS, Morristown, Tenn.

WANTED.—Honey, extracted and comb. Will buy or handle on commission. Beeswax—will pay highest price. HILDRETH & SEGELKEN, New York, N. Y.

FOR SALE

FOR SALE.—A full line of Root's goods at Root's prices. A. L. HEALY, Mayaguez, Porto Rico.

FOR SALE.—Full line of Root's goods at factory prices. E. M. DUNKEL, Osceola Mills, Pa.

Beekeepers, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap. WHITE MFG. CO., Greenville, Tex.

New crop of extra-fine quality alfalfa seed, \$7.00 per bushel sacks, 25 cts. extra; also some sweet-clover seed. R. L. SNODGRASS, Augusta, Kan.

FOR SALE.—Empty second-hand cans, two cans to the case; good as new; 25 cts. per case. C. H. W. WEBER & CO., Cincinnati, Ohio.

First check for \$6.00 buys Root German wax-press, used very little. F. W. VANDEMARK, Stillwater, Okla.

FOR SALE.—Redwood hive-bodies, empty, 10 L. frames, 25 cts. each, and reinforced comb foundation. J. E. LAWRENCE, 326 Clay St., San Francisco, Cal.

FOR SALE.—Better hive for less money. Beekeepers' supplies and standard-bred Italian bees. Write for catalog. A. E. BURDICK, Sunnyside, Wash.

FOR SALE.—One check-protector, a device for protecting commercial paper. Will be useful in business houses. Will sell at far below cost. Correspondence solicited.

MRS. W. Z. HUTCHINSON, Flint, Mich.

FOR SALE.—Root's goods and Dadant's foundation at factory prices, F. O. B. Pacific Coast points in quantity lots. Standard lots in proportion. Write us, stating your wants.

SPENCER APIARIES CO., Nordhoff, Cal.

Beekeepers! On Jan. 1 there will appear on the market a new double-walled hive which is different in several respects from any other hive heretofore offered to the public. Write for description, photo, and prices. The catalogs will be out soon, and one will be mailed to all applicants free.

L. F. HOWDEN MFG. CO., Fillmore, N. Y.

REAL ESTATE

FOR SALE.—64-acre farm, finely located near State road. Good buildings, soft water. Apple orchard and two acres of raspberries.

J. M. OVENSHERE, Dundee, N. Y.

Virginia Orchards pay handsome profits. Good fruit lands in the famous apple belt, \$15 an acre up. Easy payments. Send names of two friends interested in Virginia, and receive our beautiful magazine one year free. F. H. LABAUME, Agr'l Agt. Norfolk & Western Ry., Room 246, N. & W. Bldg., Roanoke, Va.

Escape the Cold Winters. Go South—buy farm land, prices \$15 an acre up, values rapidly advancing. Live stock, dairy, poultry, truck, beekeeping, and fruit are making farmers wealthy. Schools, highways, and living conditions the best. Climate very healthy. Promising industrial openings everywhere. Land lists, State booklets, and "Southern Field" magazine free. M. V. RICHARDS, Land & Ind. Agt. Southern Ry., Room 27, Washington, D. C.

WANTS AND EXCHANGES

WANTED.—To lease large apiary or work on salary. Have had experience in several States, and can furnish best of references. State salary or terms in first letter. JAS. D. ARVIN, box 237, Millinocket, Me.

FOR SALE OR TRADE.—A good residence property, modern except heat, with outside sleeping-porch. Good poultry-houses and runs. Delightful climate. For particulars address A. DEARMON, Cheyenne, Wyo.

WANTED.—To furnish every beekeeper within 500 miles of Boise, Idaho, with the best and cheapest bee supplies on the market, *quality considered*. Send me your order or a list of your requirements for 1914. Our catalog and price list will be mailed to you free. Order early and get the discounts.

C. E. SHERIVEE, Boise, Idaho.

BEES AND QUEENS

FOR SALE.—50 to 200 colonies, eight-frame, first-class. E. F. ATWATER, Meridian, Idaho.

Pure Italian bees or their hybrids, in L. 10 frames, wired, full foundation, 1 or 100.

JOS. WALBATH, Antioch, Cal.

FOR SALE.—70 stands of bees; also 1½ acres of well-improved land; good location.

WALTER CROCKETT, Middleton, Idaho.

California Golden queens produce the bright workers, equal to any. Tested, \$1.25 to \$2.50; mated, \$1.75; 12, \$8.00; 50, \$32; 100, \$60.

W. A. BARSTOW & CO., San Jose, Cal.

We requeen our bees every year to prevent swarming. We offer the year-old queens removed from these hives at 50 cts. each, \$5.40 per dozen; \$40.00 per 100, Italian stock, delivery guaranteed. Book orders now. SPENCER APIARIES Co., Nordhoff, Cal.

Golden Italian queens that produce golden bees, the brightest kind, gentle, and as good honey-gatherers as can be found. Each: \$1.00; six, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.

J. B. BROOKSWELL, Malvern Hill, Va.

Phelps' Goldens combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; tested, \$2.00 and \$3.00; breeders, \$5.00 and \$10.00. C. W. PHELPS & SON, 8 Wilcox St., Binghamton, N. Y.

FOR SALE.—Golden Italian queens that produce golden bees; for gentleness and honey-gathering they are equal to any. Every queen guaranteed. Price \$1.00; 6 for \$5.00.

WM. S. BARNETT, Barnett's, Va.

Queens bred from Moore's and Doolittle's best Italian stock. Untested, 75 cts. each; \$8.00 per dozen; \$60.00 per 100; tested, \$1.00 each; \$10.50 per dozen; \$80.00 per 100. Delivery guaranteed. Book orders now. SPENCER APIARIES Co., Nordhoff, Cal.

GOOD QUEENS.—Good queens are a real necessity in any apiary if best results are to be expected. The old leather-colored three-band Italians have proven themselves to be the best general-purpose bees extant. These I can supply in any quantity you may wish. Untested, \$1.00 each; \$4.25 for six; \$8.00 per dozen. Safe arrival and satisfaction. All orders will have prompt attention.

E. J. ATCHLEY, Bloomington, Cal.

FOR SALE.—Italian queens and bees by the pound. Ready for delivery by April 1, 1914. Having over 600 colonies of bees and 500 nuclei from which to draw, we expect to fill all orders very promptly. For a number of years we have been constantly improving our stock with commercial queen-rearing in view. Now we are in a position to guarantee satisfaction to our customers. Give us a trial order. Write for prices, etc. BROWN & BERRY, Hayneville, Ala.

EARLY QUEENS.—Those who desire early queens can be supplied by sending orders to us. Only three-band Italians stand the severe test against diseases, and our bees are clean. Untested queens, \$1.00 each; \$4.25 for six; \$8.00 per dozen. Arrive safe arrival and satisfaction to everybody. If you desire queens in large lots early, better let us book you as soon as convenient, and money can be sent when queens are wanted. Your check is good, or any way you wish to remit. THE RIALTO HONEY CO., Box 73, Rialto, Cal.

Many men of many minds; but the minds of practical beekeepers are turned toward the old reliable three-band Italians. We have them in their purity, new blood, new importation. Untested queens from March to June, \$1.00 each; \$4.25 for six, or \$8.00 per dozen, safe arrival and satisfaction to all customers. Write for prices on large quantities. You do not have to return dead queens to us—just state it so on a postal card, and queens dead on arrival will be replaced promptly.

THE GOLDEN RULE BEE CO., Riverside, Cal.

POULTRY

Rhode Island Reds. Strong baby chicks for sale. Write me. E. O. WALTZ, Medina, Ohio.

LEGHORNS.—Eggs for hatching. S. C. W. Leghorn, \$5.00 per 100; \$1.00 per 15. Send for catalog. WOODWORTH FARM, Wilton, Ct.

S. C. White Leghorn, 15 eggs, \$1.25. Day-old chicks, 15 cts. each. Buff Wyandott, utility-stock eggs, per setting of 15, \$2.00. Day-old chicks, 20 cts. each. JOHN RINDER, Medina, Ohio.

Indian Runner breeding-ducks laying now. Utility and exhibition stock (pure white eggs) sent on approval. DEBOY TAYLOR, Box G, Lyons, N. Y.

FOR SALE.—Indian Runner ducks. Stock bred from first-prize hen and first-prize drake. Ohio State Fair. Fine birds, and unequalled egg-producers. Guaranteed birds at reasonable prices.

L. G. CARY, Trimble, Ohio.

PIGEONS

Pigeons! Pigeons! Thousands, all breeds; lowest prices; satisfied customers everywhere. Start with our \$8-\$8-making Jumbo Squab-breeders. Large, free, instructive, illustrated matter.

PROVIDENCE SQUAB CO., Providence, R. I.

MISCELLANEOUS

FREE.—A useful New Year's gift sent prepaid to each beekeeper who sends his address on a postal.

J. B. HOLLOPETER, Pengl, Pa.

HELP WANTED

WANTED.—Apiarist for 1914. Comb honey, 200 colonies. State salary expected, and experience. Work to commence March 1. B. F. SMITH, Jr., Cowley, Wyo.

WANTED.—Experienced bee-men. Give age and experience in first letter.

W. W. FAIRCHILD, Heber, Cal.

WANTED.—A good queen-breeder; begin March 1 or sooner. Give full particulars in letter of application. W. D. ACHORD, Fitzpatrick, Ala.

WANTED.—A young man for the season of 1914 who wishes to learn the bee business. Users of liquor or tobacco need not apply.

J. G. WALLER, Idaho Falls, Idaho.

WANTED.—Help in an American apiary. Work the year round, and good wages to the right man. Man and wife preferred. H. H. ARNOLD, Trinidad Honey Co., Trinidad, Cuba.

WANTED.—Young single man, familiar with bee business, to help with supplies, honey, and queen-production. We furnish board and lodging. State wages wanted. THE PENN CO., Penn, Miss.

I could take two or three young men of good clean habits to learn beekeeping during the season of 1914; crop last year, 45,000 lbs. Board free, and something more if we both do well.

R. F. HOLTERMAN, Brantford, Ont., Can.

WANTED.—A sober, energetic young man as salesman to solicit the retail grocery trade, and to help case, grade, bottle, and pack honey for shipment. Some knowledge of and experience with bees required. Give reference. State age, and wages expected in first letter.

LATSHAW HONEY CO., Carlisle, Ind.

WANTED.—Experienced apiarist for coming season; man who is able and willing to work; extracted honey; wages \$60.00 per month and board for season. Give age, experience, and nationality, first letter. If you will work for us one season, and show your ability to handle bees, we will sell you a yard of bees on easy terms. SPENCER APIARIES CO., Nordhoff, Cal.

POSITION WANTED

WANTED.—Situation in Florida. See ad. of Dec. 15. G. W. BABCOOK, Brockport, N. Y.

BEEKEEPERS' DIRECTORY

If you need queens by return mail send to J. W. K. SHAW & CO., Loreauville, Iberia Parish, La.

Nutmeg Italian queens, leather color, after June 1, \$1.00. A. W. YATES, Hartford, Ct.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York.

QUEENS.—Improved red-clover Italians, bred for business. June 1 to Nov. 15, untested queens, 75 cts. each; dozen, \$8.00; select, \$1.00 each; dozen, \$10; tested queens, \$1.25 each; dozen, \$12.00. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Boyd, Ky.

Quirin's famous improved Italian queens, nuclei, colonies, and bees by the pound, ready in May. Our stock is northern-bred and hardy; five yards wintered on common stands in 1908 and 1909 without a single loss. For prices, send for circular.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

SPECIAL NOTICES

HOT-BED SASH.

This is the time of year to be getting ready for the early spring vegetables by providing hot-bed sash. We call attention to our choice cypress sash, which are made 3 ft. 4 in. by 6 ft. for four rows of eight-inch glass let into grooves, or rabbeted. Unless otherwise specified, we furnish grooved sash. A single one, K. D. \$1.00; 5 of the same in a crate, \$4.75; 10 for \$9.00. If put together, add 10 cts. each; and for each coat of paint add 10 cts.; 8 x 10 glass for same, \$2.80 per box of 90 lights; 5 boxes at \$2.60; 10 boxes or over at \$2.50.

SWEET-CLOVER SEED.

The demand for this seed is remarkably good, especially in Iowa, Kansas, and Oklahoma, where its value is best known. The supply of seed bids fair to be somewhat short of the demand again this

year. Because the seed continues to ripen for some weeks, the question of saving the seed is a difficult one, and those new in the business are apt to find the greater portion shelled off before they get ready to harvest it. What looks like a fine crop of seed early in the season may dwindle to small proportions by the time it is saved and hulled. We are prepared to supply choice seed at the following prices:

Prices in lots of	1 lb.	10 lb.	25 lb.	100 lb.
Melilotus alba, biennial.....				
White sweet clover, hulled..	.24	\$2.20	\$5.00	\$20.00
White sweet clover, unhull'd.	.17	1.50	3.50	13.00
Mellilotus officinalis, biennial				
Yellow sweet clover, hulled..	.28	2.60	6.25	24.00
Yellow sweet clover, unhull'd.	.21	1.90	4.50	17.00
Annual yellow, hulled.....	.14	1.20	2.75	10.00

THE A. I. ROOT CO. REPRESENTATIVES FOR CANADA.

We have recently appointed the Charles E. Hopper Co., 185 Wright Ave., Toronto, Canada, as our representatives for Canada in the place of E. Grainger & Co., of the same city. Mr. Grainger's other business has taken up so much of his time that it was impossible to give the bee line the attention that he thought it deserved. Mr. C. E. Hopper, of the C. E. Hopper Co., is an enthusiastic beekeeper; and after having had a talk with Mr. Grainger he arranged to take over the Root line of goods under the firm name as above mentioned. Mr. Hopper has a partner who is backing him financially, and who will otherwise be able to help him materially in pushing the Root line of goods in Canada. The C. E. Hopper Co. will soon have a stock of Root goods; and while they will not carry a full line they will have all the standard goods such as are used so extensively in Canada.

The C. E. Hopper Co. are arranging to have demonstration meetings with power extracting outfits at one or two points this coming spring and summer.

The Root goods were never more popular than they are in Canada to-day, and we take pleasure in announcing that the new firm will be glad to get in touch, not only with the old Root customers, but new ones.

SECOND-HAND FOUNDATION MILLS.

We have to offer the following list of foundation machines which have been used, but are in fair condition. In many cases they will answer as well as a new machine where you have only a moderate output. Send for samples of any mill in the list which may interest you.

No. 0139, 2 1/4 x 6 hexagonal thin-super mill, in very good condition. Price \$14.00.

No. 0140, 2 1/4 x 6 hexagonal thin-super mill, in very good condition. Price \$14.00.

No. 0142, 2 1/4 x 6 hexagonal thin-super mill, in fair shape. Price \$10.00.

No. 0153, 2 1/4 x 6 hexagonal thin-super mill, in very good condition. Price \$14.00.

No. 0154, 2 1/4 x 6 hexagonal thin-super mill, in very good condition. Price \$14.00.

No. 0156, 2 1/4 x 6 extra-thin-super mill, fair. Price \$10.00.

No. 0157, 2 1/4 x 6 thin-super mill in good condition. Price \$12.00.

No. 0160, 2 1/4 x 6 hexagonal thin-super mill, in good condition. Price \$12.00.

No. 0165, 2 1/4 x 6 hexagonal extra-thin-super mill in fair condition. Price \$11.00.

No. 0167, 2 1/4 x 6 hexagonal extra-thin-super mill in fair condition. Price \$11.00.

No. 0176, 2 1/2 x 6 extra-thin-super mill in fair condition. Price \$12.00.

No. 0180, 2 1/4 x 6 hexagonal thin-super mill, in fair condition. Price \$10.00.

No. 0183, 2 1/4 x 6 hexagonal thin-super mill, very good condition. Price \$14.00.

No. 0187, 2 x 10 round-cell medium-brood mill, old-style frame, in good condition. Price \$14.00.

No. 0188, 2 x 10 round-cell medium-brood mill, in good condition. Price \$14.00.

No. 0191, 2 x 10 round-cell Pelham mill in good condition for this kind of mill. The bases of the cells are not natural shape, but the walls are regular. Price \$7.00. Sample mailed free if interested.

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Convention Notices

The Ohio State convention will be held here Feb. 12 and 13. Dr. Burton N. Gates, President of the National, will be here for three addresses. Other speakers of national reputation are expected to be present. Program of meeting will appear in next issue of GLEANINGS.

Athens, Ohio, Dec. 16.

W. A. MATHENY.

The Western New York, Seneca County, and Ontario County beekeepers' societies will hold a joint meeting in Canandaigua, N. Y. (courthouse), on Jan. 13, 1914. An interesting program has been prepared.

F. GREER, Sec. Ont. Co. B. K. Society,
E. F. CASE, Sec. W. N. Y. Society,
C. B. HOWARD, Sec. Seneca Co. Society.

The thirty-third annual convention of the Colorado State Beekeepers' Association will be held at the Auditorium Hotel, Denver, Col., January 20, 21, 1914. The annual reduced rates during the livestock show will make it possible for beekeepers to take advantage of the half-fare and also attend the stock show, which will be open all the week.

The program has not been entirely arranged for, but we are to have some exhibits of interest to all beesmen.

Boulder, Col., Dec. 17.

WESLEY FOSTER, Sec.

The annual convention of the State Beekeepers' Association will be held at the Agricultural College, Jan. 30, 1914, under auspices Extension Division. Special rates over all Utah railroads. The following is the program:

10 A. M.—Enrollment, faculty room; call to order, room 128; President's address, E. B. Hawkins, American Fork; appointment of committees; report of secretary, H. C. Hensager, Salt Lake.

11 A. M.—Rearing and introducing queens, R. T. Rheeze, Ogden; Production and Sale of Honey, Wilford Belliston, Nephi.

2 P. M.—Foul-brood treatment, James Hacking, Vernal; Wintering—Summer stand, cellar, N. E. Miller, Logan; Middleman and Sale of Honey, A. G. Anderson, Beaver.

8 P. M.—Music, School of Music, U. A. C.; Life of the Honeybee (lantern slides), Dr. E. G. Titus, U. A. C.; Reports of committees and election of officers.

An exhibit of bees and beekeeping appliances will be open to the beekeepers and other visiting farmers and housewives in the College Museum.

IMPORTANT MEETINGS FOR BEEKEEPERS.

Farmers' round-up and housekeepers' conference, Jan. 26 to Feb. 7. State poultrymen's convention, Jan. 29-31. State poultry show, Jan. 26-31. State dry-farmers' convention, Jan. 31. State dairymen's convention, Feb. 2. Utah Development League, Jan.

The National Beekeepers' Association convention will be held in St. Louis, Feb. 17, 18, 19. The exact meeting-place, program, and entertainment will be announced in a subsequent issue. Concerning the program it may be announced that the foremost authorities in the country are being solicited for contributions, and it is assured that many of these will respond. The convention will be divided into sessions for business, and for the reading and discussion of apicultural subjects. At business sessions the delegates from the various affiliated associations throughout the country will prosecute the usual annual transactions. The general sessions for papers and discussions, it is hoped, will cover a series of special subjects, as, for instance, a short session on

bee diseases and their treatment; a session on the apicultural conditions of various localities of the country. It is hoped to have a discussion of wintering, the growing queen industry, and to make a feature of the demonstrations and discussion of new inventions and manipulations. It is, furthermore, hoped that at least some of the lectures may be illustrated with lantern slides.

Can you not attend this convention? The sessions are open to all interested in the promotion of bee-keeping. Keep close watch of the beekeeping press for subsequent announcements. The undersigned would be grateful for suggestions and inquiries. What can you contribute to the convention?

BURTON N. GATES, President.

Amherst, Mass., Dec. 23.

SPECIAL NOTICES

A. I. Root

On page 36 of this issue, in my reply to Mr. John Major, by a misprint I am made to say, "We buy oats every day," etc. It should read, "We bury oats every day," etc.

THE AJAX OXYGEN VITALIZER FOR INCUBATORS.

The manager of the Reliable Poultry Specialty Co., Alexander, N. Y., has furnished satisfactory evidence that their vitalizer (see p. 787, Nov. 1, and p. 18, ad. department, Sept. 15) is really a wonderful invention, and that I have done it injustice. I am exceedingly glad to know that I was mistaken, and stand ready to help herald it as one of the great inventions of the world; for if it saves "chicks," why may we not expect it to save humanity?

Literary Notes

Among the distinguished contributors to *The Youth's Companion* during 1914 will be Ex-President Taft, Oscar W. Underwood (Chairman of the Committee of Ways and Means), Judson Harmon, Mrs. Kate Douglas Wiggin, Mrs. Gene Stratton Porter (author of "The Harvester," etc.), Miss Mary N. Murfree ("Charles Egbert Craddock"), Jane Barlow, Mrs. Burton Harrison, Marion Harland, A. Lawrence Lowell (President of Harvard University), Nicholas Murray Butler (President of Columbia University), Arthur T. Hadley (President of Yale University), John Grier Hibben (President of Princeton University), A. W. Harris (President of Northwestern University), John G. Bowman (President of the State University of Iowa), George E. Vincent (President of the University of Minnesota), Bliss Perry (Professor of English Literature Harvard University), Rev. Dr. F. E. Clark (President of the United Society of Christian Endeavor), Sir Ernest Shackleton (the polar explorer), the Duke of Argyll, Gen. Frank McIntyre (Chief of the Bureau of Insular Affairs), Dr. Percival Lowell (Director of the Flagstaff Observatory), Sir William Ramsay (the great chemist), Sir John Murray (the oceanographer), E. Dana Durand (former Director of the Census), Hudson Maxim, John Foord (Secretary of the American Asiatic Association), and Prof. Hugo Munsterberg.

No one knows Ireland and the Irish better than Miss Jane Barlow, and in an article on "The Big Houses" she again proves her familiar charm and her ability to blend humor and pathos.

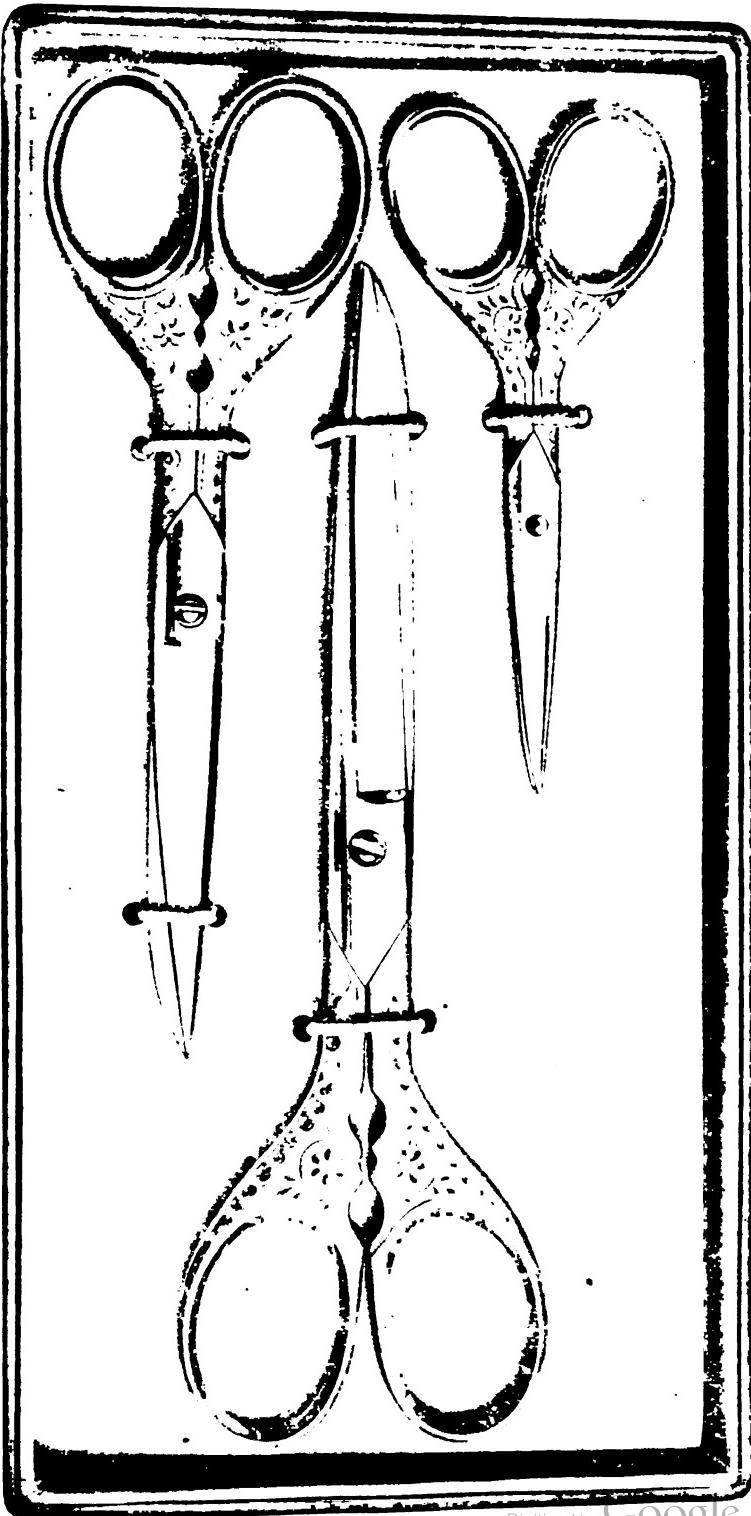
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Fifty Years Among the Bees. New edition. By Dr. C. C. Miller. Dr. Miller is too well known among the beekeeping fraternity to need any introduction. His book is charmingly written, and covers his experience in detail.	1 00
15 Cook's Manual, cloth.....	1 00
5 Doolittle on Queen-rearing.....	95
15 Langstroth on the Honeybee, Revised edition	1 10
10 Quinby's New Beekeeping.....	90
5 British Beekeepers' Guide-book, by Thomas William Cowan, England.....	95
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10 How to Keep Bees.....	90
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11 The Swarm, Maeterlinck.....	1 20
7 The Bee-master of Warriow, Edwards.....	50
10 Lore of the Honeybee.....	1 90
Alexander's Writings on Practical Bee Culture. By the late E. W. Alexander, who conducted the largest apairy in the United States. A wonderfully interesting discussion of beekeeping in its broadest phases. Any one can understand it; 35 chapters, 95 pages. Paper bound, 50 cts. postpaid.	

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MISCELLANEOUS HAND-BOOKS.

5 A C B of Carp Culture, by Geo. Finley.....	25
7 A B C of Potato Culture, Terry. New edition, revised and enlarged; paper, 50c; cloth, 75c; mail, 85c.	

This is T. B. Terry's first and most masterly work. It has really made a revolution in potato-growing, and has been reprinted in several foreign languages. By getting the ground in proper condition to grow great crops of clover, and turning this under, Terry succeeded, not only in getting more potatoes, but even better ones, and in producing them at less expense also, than by any plan or system before the time he began his experiments in 1885. The book has already passed through three editions of many thousands. It not only includes potato-growing in the United States, but in Bermuda, the Island of Jersey, and other warmer parts of the world where "new potatoes" are raised for the express purpose of getting the high prices in the cities during January, February, and March. The book also gives special attention to the different and best methods for preserving and keeping seed potatoes in the very best condition to plant in all these different localities.

5 A B C of Strawberry Culture, by T. B. Terry. New edition, revised and enlarged; paper, 45c; cloth, 68c; by mail, 75c.	
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After Terry's potato-book had obtained such a kind reception from farmers, market-gardeners, and

others, he was induced to give his plan of growing strawberries, as he did potatoes, by plowing under great crops of clover, and, like the potato-book, his writings gave a new impetus to strawberry-growing; in fact, some of his pupils declare that, aside from the picking, they can grow strawberries almost as cheaply per bushel as potatoes. By following Terry's teachings, thousands of people have not only been able to give their families but the whole wide world better strawberries, and more of them, than they ever saw before.

6 Asparagus Culture.....	40
6 Alfalfa Culture.....	40
Barn Plans and Out-buildings.....	90
2 Celery for Profit, by T. Greiner.....	25

The first really full and complete book on celery culture, at a moderate price, that we have had. It is full of pictures, and the whole thing is made so plain that a schoolboy ought to be able to grow paying crops at once without any assistance except from the book.

10 Fruit Harvesting, Storing, Marketing, etc..	75
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It has been well said that it is an easier matter to grow stuff than to sell it at a proper price after it is grown; and many men fail, not because they are inexpert in getting a crop, but because they do not know how to sell their crops to the best advantage. This is the first book of the kind we have had as an aid in selling. It not only tells all about picking, sorting, and packing, but gives all the best methods for storing for one or two days or a longer time. It also tells about evaporating and canning when there is a glut in the market. It discusses fruit packages and commission dealers, and even takes in cold storage. It is a new book of 250 pages, full of illustrations. Publisher's price, \$1.00.

Farming with Green Manures, postpaid..	90
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This book was written several years ago; but since competent labor has got to be so expensive and hard to get many farmers are beginning to find they can turn under various green crops much cheaper than to buy stable manure and haul and spread it—cheaper, in fact, than they can buy fertilizers. This book mentions almost all plants used for plowing under, and gives the value compared with stable manure. Some of the claims seem extravagant, but we are at present getting good crops and keeping up the fertility by a similar treatment, on our ten-acre farm.

7 Farm, Gardening and Seed-growing.....	90
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10 Fuller's Grape Culturist.....	1 15
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5 Garden and Farm Topics, Henderson.....	60
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12 Gardening for Pleasure, Henderson.....	1 10
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While "Gardening for Profit" is written with a view of making gardening pay, it touches a good deal on the pleasure part, and "Gardening for Pleasure" takes up this matter of beautifying your homes and improving your grounds, without the special point in view of making money out of it. I think most of you will need this if you get "Gardening for Profit." This work has 246 pages and 134 illustrations. (Retail price \$2.00.)

12 Gardening for Profit.....	1 10
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This is a late revision of Peter Henderson's celebrated work. Nothing that has ever before been put in print has done so much toward marking market-gardening a science and a fascinating industry. Peter Henderson stands at the head, without question, although we have many other books on these rural employments. If you can get but one book, let it be the above. It has 376 pages and 138 cuts. (Retail price \$2.00.)

8 Gardening for Young and Old, Harris.....	90
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This is Joseph Harris' best and happiest effort. Although it goes over the same ground occupied by Peter Henderson, it particularly emphasizes thorough cultivation of the soil in preparing your ground, and this matter of adapting it to young people as well as old is brought out in a most happy vein. If your children have any sort of fancy for gardening it will pay you to make them a present of this book. It has 187 pages and 46 engravings.

Postage	Price without Postage	Postage	Price without Postage
3 Grasses and Clovers, with Notes on Forage Plants	20	2 Experiments in Farming, by Waldo F. Brown	08
This is by Henry A. Dreer, author of the book "Vegetables under Glass" that has had such a large sale of late. This little book tells how six tons of grass has been grown to the acre, and gives much other valuable matter.		This little book ought to be worth its cost for what is said on each of the four different subjects; and the chapter on cement floors may be worth many dollars to anybody who has to use cement for floors, walks, or any thing else. In fact, if you follow the exceedingly plain directions you may save several dollars on one single job; and not only that, get a better cement floor than the average mason will make.	
10 Greenhouse Construction, by Prof. Taft...1 15		0 Our Farming, by T. B. Terry.....	75
This book is of recent publication, and is as full and complete in regard to the building of all glass structures as is the next book in regard to their management. Any one who builds even a small structure for plant-growing under glass will save the value of the book by reading it carefully.		Same, paper cover, postpaid.....	50
12 Greenhouse Management, by Prof. Taft...1 15		In which he tells "how we have made a run-down farm bring both profit and pleasure."	
This book is a companion to Greenhouse Construction. It is clear up to the times, contains 400 pages, and a great lot of beautiful half-tone engravings. A large part of it is devoted to growing vegetables under glass, especially Grand Rapids lettuce, as well as fruit and flowers. The publisher's price is \$1.50, but as we bought quite a lot of them we can make a special price as above.		If ordered by express or freight with other goods, 10c less.	
5 Gregory on Cabbages, paper.....	20	10 Talks on Manures.....	1 85
5 Gregory on Squashes, paper.....	20	By Joseph Harris. Written in conversational style, which makes it very interesting reading. It covers the subject very completely; contains numerous analyses of manures and comparative tables. The use of technical language is avoided, which makes the book of greatest value to the practical farmer. A book of 366 pages, nicely bound in cloth.	
5 Gregory on Onions, paper.....	20	10 The Dollar Hen.....	90
The above three books, by our friend Gregory, are all valuable. The book on squashes especially is good reading for almost anybody, whether they raise squashes or not. It strikes at the very foundation of success in almost any kind of business.		The above book will be clubbed with <i>GLEANINGS</i> for one year at \$1.50; or if you have already subscribed a year or more in advance you can have the book postpaid for 75 cents.	
Handbook for Lumberman.....	05	My opinion is, that "The Dollar Hen" is not only one of the best books on poultry that we have at the present time, but it is worth nearly as much as a dozen other books. Perhaps this is extreme, but we have very few books that are strictly up-to-date, and still fewer that pitch right into the superstitions and humbug now scattered all through our poultry books and journals.	
5 Home Pork-making; 125 pages, illustrated. 40		5 The New Rhubarb Culture.....	40
I think it will pay well for everybody who keeps a pig to have this book. It tells all about the care of the pig, with lots of pictures describing cheap pens, appliances, all about butchering, the latest and most approved short cuts; all about making the pickle, barreling the meat, fixing a smoke-house (from the cheapest barrel up to the most approved arrangement); all about pig-troughs; how to keep them clean with little labor; recipes for cooking pork in every imaginable way, etc. Publisher's price is 50 cents, ours as above.		Wherever apples are worth a dollar a bushel or more, winter-grown rhubarb should pay big. It does not require an expensive house nor costly appliances. Any sort of cellar where it will not freeze is all right for it; and the small amount of heat necessary to force the rhubarb costs very little. The book is nicely bound in cloth, full of illustrations, mostly photos from real work, 180 pages. Every market-gardener should have this book for the lessons taught indirectly in regard to forcing other crops besides rhubarb. Publisher's price 50c.	
15 How to Make the Garden Pay.....1 35		5 Tile Drainage, by W. I. Chamberlain.....	85
By T. Greiner. Those who are interested in hot-beds, cold-frames, cold green-houses, hothouses, or glass structures of any kind for the growth of plants, can not afford to be without the book. Publisher's price, \$2.00.		Fully illustrated, containing every thing of importance clear up to the present date.	
10 How to Keep Well and Live Long..... 90		The single chapter on digging ditches, with the illustrations given by Prof. Chamberlain, should alone make the book worth what it costs to every one who has occasion to lay ten rods or more of tile. There is a much science in digging as in doing almost any thing else; and by following the plan directed in the book, one man will often do as much as two men without this knowledge.	
The above book by T. B. Terry is, in my opinion, destined to relieve more pain, sickness, and death than any other book in the whole world that has ever come to my knowledge. This is pretty strong language, I admit; but since Mr. Terry commenced, years ago, to urge the importance of pure air, pure water, and a simple diet of good simple food in moderate quantities, the whole wide world, doctors included, seems to be gradually falling in with him. Of course, other good and wise men commenced a similar crusade for better health long before Terry did; but he seems to have a happy faculty of getting hold of people and keeping their attention. After you once start in with the book you will be pretty sure to read it to the end, and you will ever after be a better and a happier man or woman for having read it. We have a special low price for clubbing with <i>GLEANINGS</i> —that is, both for \$1.50. If you have already paid for <i>GLEANINGS</i> a year or more in advance you can have the book for 75 cents postpaid. Since it first came out, only a short time ago, we have sold nearly 1000 copies.		5 Tomato Culture.....	85
3 Maple Sugar and the Sugar-bush..... 25		In three parts. Part first.—By J. W. Day, of Crystal Springs, Miss., treats of tomato culture in the South with some remarks by A. I. Root adapting it to the North. Part second.—By D. Cummins, of Conneaut, O., treats of tomato culture especially for canning factories. Part third.—By A. I. Root, treats of plant-growing for market and high-pressure canning in general.	
5 Manures; How to Make and How to Use Them; in paper covers..... 30		3 Winter Care of Horses and Cattle..... 25	
6 The same in cloth covers..... 65		This is friend Terry's second book in regard to arm matters; but it is so intimately connected with his potato-book that it reads almost like a sequel to it. If you have only a horse or a cow, I think it will pay you to invest in a book. It has 44 pages and 4 cuts.	
1 Nut Culturist, postpaid..... 1 25		8 What to Do, and How to be Happy while Doing It..... 65	
3 Onions for Profit..... 40		The above book by A. I. Root is a compilation of papers published in <i>Gleanings in Bee Culture</i> , in 1886, '7, and '8. It is intended to solve the problem of finding occupation for those scattered over our out and out of employment. The suggestions are principally about finding employment about your own homes. The book is mainly upon market-gardening, fruit-culture, poultry-raising, etc. Illustrated, 188 pages; cloth.	
Fully up to the times, and includes both the old onion culture and the new method. The book is fully illustrated, and written with all the enthusiasm; and even if one is not particularly interested in the business, almost any person who picks up Greiner's book will like to read them through.		8 Same, paper covers..... 40	
8 Practical Floriculture, Henderson.....1 10			
0 Small-fruit Culturist, Fuller..... 75			

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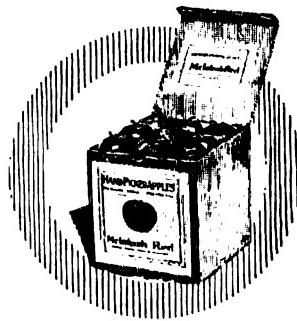
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Gleanings *in* Bee Culture



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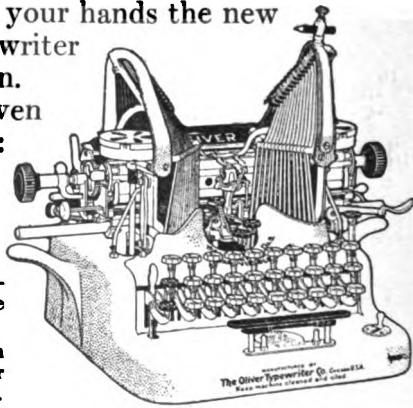
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This offer places at your command a machine that turns time, energy, and enterprise into the pure gold of success.

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The Standard Visible Writer

Easy to Pay--17 Cents a Day

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Against your risk of a few dollars we risk a \$100 typewriter—the same machine that is used by the greatest firms and corporations throughout the world.

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The Oliver Typewriter Co., 116 Prospect Ave., Cleveland, O.

"Falcon" Bee Supplies.

Every Thing for the Beekeeper

Take advantage of the early-order discount, send us your list of requirements, and we will quote you our very best factory prices and discounts.

Having recently constructed an eight-car-capacity kiln, and having enlarged our power plant, we shall be able to handle your orders to the best advantage.

"Falcon" Supplies speak for themselves. Don't delay your order, but take advantage of this opportunity and let us ship the goods at your convenience.

Send for our foundation samples and Red Catalog, postpaid.

W. T. Falconer Manufacturing Company, Falconer, New York

Where the good beehives come from

HONEY Bought Sold... Central Ohio Honey Market

Finest quality WHITE - CLOVER honey a specialty. Producers who have not yet sold their crop should write. Those who have disposed of their crop and are in need of more for their trade, I shall be glad to supply at lowest prices consistent with highest quality and a fair margin of profit.

The correspondence of wholesale and retail dealers is especially solicited, as I am in position to furnish a grade of comb and extracted honey that will suit the most exacting trade. If interested, write for quotations and full description of the line.

Bee Supplies

Now is the best time to place your order for supplies for use next season. The prospect was never brighter, and there is every thing to gain and nothing to lose by ordering before the spring rush is on. Ask for revised price list and early-order discounts.

Root Quality and Peirce Service
from Ohio's Supply Center

E. W. Peirce, Zanesville, O.
Airdome Bldg., South Sixth St.

HOW FAR CAN A BEE SEE?

That question has been argued "time and again," but it doesn't worry me one-half so much as does another question—

How much can you see?

How many people there are to look, and how few there are to see and to think!

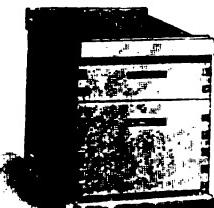
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tells you how. . It teaches people to see the wonders and beauties of nature.

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Edward F. Bigelow, Editor,
The Agassiz Association, Inc.
ARCADIA :
Sound Beach, Connecticut



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29 years' experience in making everything for the beekeeper. A large factory specially equipped for the purpose ensures goods of highest quality. . . . Write for our illustrated catalog and discounts today.

LEAHY MFG. CO., . 95 Sixth St., . Higginsville, Missouri

HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market price at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

NATIONAL BEEKEEPERS' ASSOCIATION GRADING RULES.

Adopted at Cincinnati, Feb. 13, 1913.

Sections of comb honey are to be graded: First, as to finish; second, as to color of honey; and third, as to weight. The sections of honey in any given case are to be so nearly alike in these three respects that any section shall be representative of the contents of the case.

I. FINISH:

1. *Extra Fancy*.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white, and not more than six unsealed cells on either side.

2. *Fancy*.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white, and not more than six unsealed cells on either side exclusive of the outside row.

3. *No. 1*.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white to slightly off color, and not more than 40 unsealed cells, exclusive of the outside row.

4. *No. 2*.—Comb not projecting beyond the box, attached to the sides not less than two-thirds of the way around, and not more than 60 unsealed cells exclusive of the row adjacent to the box.

II. COLOR:

On the basis of color of the honey, comb honey is to be classified as: first, white; second, light amber; third, amber; and fourth, dark.

III. WEIGHT:

1. *Heavy*.—No section designated as heavy to weigh less than fourteen ounces.

2. *Medium*.—No section designated as medium to weigh less than twelve ounces.

3. *Light*.—No section designated as light to weigh less than ten ounces.

In describing honey, three words or symbols are to be used, the first being descriptive of the finish, the second of color, and the third of weight. As for example: Fancy, white, heavy (F-W-H); No. 1, amber, medium (1-A-M), etc. In this way any of the possible combinations of finish, color, and weight can be briefly described.

CULL HONEY:

Cull honey shall consist of the following: Honey packed in soiled second-hand cases or that in badly stained or propolized sections; sections containing pollen, honey-dew honey, honey showing signs of granulation, poorly ripened, sour or "weeping" honey; sections with comb projecting beyond the box or well attached to the box less than two-thirds the distance around its inner surface; sections with more than 60 unsealed cells, exclusive of the row adjacent to the box; leaking, injured, or patched-up sections; sections weighing less than ten ounces.

NEW HONEY-GRADING RULES ADOPTED BY THE COLORADO STATE BEEKEEPERS' ASSOCIATION,

DECEMBER 18, 1911.

FANCY WHITE.—Sections to be well filled, comb firmly attached to all sides and evenly capped except the outside row next to the wood. Honey, combs, and cappings white, and not projecting beyond the wood; wood to be well cleaned; no sections in this grade to weigh less than 18 $\frac{1}{2}$ ounces.

No. 1.—Sections to be well filled, combs firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey white or very slightly off color. Combs not projecting beyond the wood; wood to be well cleaned; no section in this grade to weigh less than 18 $\frac{1}{2}$ ounces.

CHOICE.—Sections to be well filled; combs firmly attached; not projecting beyond the wood, and entirely capped, except the outside row next to the wood. Honey, comb, and cappings from white to amber, but not dark; wood to be well cleaned; no section in this grade to weigh less than 12 ounces.

No. 2.—This grade is composed of sections that are entirely capped, except row next to wood, weighing from ten to twelve ounces or more, also of such sections that weigh 12 ounces or more, and have not more than 50 uncapped cells all together, which must be filled. Combs and cappings from white to amber in color, but not dark; wood to be well cleaned.

EXTRACTED HONEY.—Must be thoroughly ripened, weigh 12 pounds per gallon. It must be well strained, and packed in new cans. It is classed as white, light amber, and amber.

STRAINED HONEY.—This is honey obtained from combs by all other means except the centrifugal extractors, and is classed as white, light amber, amber, and dark; it must be thoroughly ripened and well strained. It may be put up in cans that previously have contained honey.

ST. LOUIS.—There is not much change in our honey market since our last quotation. The market recently has been very quiet on extracted and also comb honey. The market is well supplied with both western and southern comb honey. We are quoting today, in a jobbing way, from 15 to 16; No. 1, 14; light amber from 11 to 12 by the case; fancy white comb from \$3.00 to \$8.25; No. 1 from \$2.50 to \$2.75, and light amber from \$2.25 to \$2.40; dark amber at \$2.00; light-amber extracted in barrels, 6%, and five-gallon cans at \$7.50. Beeswax, 32 for prime; inferior and impure sells for less.

St. Louis, Mo., Dec. 26.

R. HARTMANN PRODUCE CO.

Honey reports continued on page 5.

We are in the Market for Both Extracted and Comb Honey

Would like to hear from those having Fancy and Number One Comb Honey. State best prices delivered Cincinnati. We want Extracted Honey, too. No lot too large or too small for us. We remit the very day shipment is received.

THE FRED W. MUTH CO.

204 WALNUT STREET

"The Busy Bee Men"

CINCINNATI OHIO

P. S.—Ship us your old combs and let us render them for you. Our process extracts the last drop of wax from the slumgum. We make money for you if you will ship us your old combs and cappings for rendering. Write for full particulars.

SPECIAL DELIVERY

During this month we shall double our usual efforts in points of delivery and service. We carry nothing but the Root make, which insures the best quality of every thing. We sell at factory prices, thereby insuring a uniform rate to every one. The saving on transportation charges from Cincinnati to points south of us will mean quite an item to beekeepers in this territory. We are so located that we can make immediate shipment of any order the day it is received.

Honey and Wax

If you haven't made arrangements for the disposition of your honey and wax for this season consult us. We buy both in large quantities, and can assure you of fair and courteous treatment, and a good price for your crop.

Shipping Cases

To sell your crop to the best advantage it must be well put up in attractive style. We have shipping cases that answer every requirement of looks and utility. Small producers who sell their crops locally will be interested in the cartons in which comb honey is put up to sell to the fancy customers at top-notch prices. We have honey-cans too, in cases for those who produce extracted honey. In fact, there isn't any thing we don't have that the beekeeper needs, either to produce his crop or help to sell it.

Early-order discount this month is 3 per cent.

C. H. W. Weber & Co.

2146 Central Avenue

Cincinnati, Ohio

Gleanings in Bee Culture

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A. I. ROOT
Editor Home Dept.

H. H. ROOT
Ass't Editor

J. T. CALVERT
Business Mgr.

Department Editors:—Dr. C. C. Miller, J. E. Crane, Louis H. Scholl, G. M. Doolittle, Wesley Foster, J. L. Byer, P. C. Chadwick.

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ALBANY.—The honey market is quiet, with little stock on hand, and light receipts. Buying now is in single cases and small lots for grocers to patch out with. We quote fancy white, 16; medium white, 16; amber, 18½ to 14; buckwheat, 18 to 14; extracted, slow, at 7½ for buckwheat; 8 for amber; 8½ for white. Beeswax, 80 to 82.

Albany, N. Y., Dec. 28. H. R. WRIGHT.

INDIANAPOLIS.—A slackened demand faces the honey situation. Fancy white comb is selling at 16 to 17; No. 1 white, one cent less; finest extracted, 9 to 10 cents in five-gallon cans. Producers who sold early in the season were fortunate in doing so. Beeswax is in good demand, and producers are being paid 81 cents cash or 83 cents in trade.

Indianapolis, Jan. 8. WALTER S. PODER.

LIVERPOOL.—Present stocks of Chilian honey are about 2000 barrels. There is no demand. From \$7.20 to \$7.68 is quoted for pile No. 1; \$6.24 to \$6.48 for pile No. 2; \$5.76 to \$6.00 for pile No. 3. Californian retail sales, value \$10.32 to \$10.80. New Zealand, 20 cases white, fine, \$10.80. Jamaica, 50 packages sold at \$6.84 to \$8.75.

Liverpool, Dec. 20. TAYLOR & CO.

INCREASE Your SALES ... By a Liberal Distribution of Our Booklet ... THE USE OF HONEY IN COOKING

The 1913 edition is ready for distribution, and may be had in quantities at reasonable rates. The back cover page affords space for a display advertisement. As this booklet contains no advertising whatever, it can be employed with telling effect. Better order your supply early. Sample and prices in quantities on application. Fifty-eight pages: one hundred and twenty-two valuable recipes in which honey is used. Just the book for every household. A two-cent stamp will bring a copy.

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Bekeepers should bear this in mind when ordering
their supplies. A full line of supplies always
in stock. Send for catalog

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remember we carry a full stock and sell at the lowest catalog price. Two lines of railroad—Maine Central and Grand Trunk. Prompt service and no trucking bills.

THE A. I. ROOT CO., Mechanic Falls, Maine
J. B. MASON, Manager

How to Keep Bees

BY ANNA BOTSFORD COMSTOCK

This is an excellent book for the beginner. Nothing better. We cordially recommend it to all who are learning beekeeping by their own effort. Having commenced beekeeping three times, the talented author is in a position to furnish the right kind of advice. You can not go wrong in getting this book. It is charmingly written and easily understood. Price \$1.10 postpaid.

THE A. I. ROOT COMPANY, MEDINA, OHIO.

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Your Neighbors Won't Know

as much about your financial affairs as you yourself if you bank by mail. Privacy, however, is only a minor advantage of our Banking-by-Mail plan

The absolute safety afforded and the 4 per cent interest paid by this million-dollar bank are the two main reasons why hundreds of people the country over are mailing their deposits to us.

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If you will send us a list of goods needed we will be pleased to quote you on them. Catalog free.

I. J. STRINGHAM, 105 PARK PLACE, NEW YORK
Apt. 10, Glen Cove, L. I.

The ABC of Bee Culture

The only cyclopedia on bees, 712 pages, fully illustrated. Every phase of the subject fully treated by experts. Price \$2.00 postpaid; money refunded if unsatisfactory.

THE A. I. ROOT CO., Medina, Ohio.

Gleanings in Bee Culture

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A. L. BOYDEN, Advertising Manager.

Established 1878.

CIRCULATION 85,000.

Issued semi-monthly.

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Twenty-five cents per agate line flat. Fourteen lines to the inch.

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Preferred position, inside pages, 30 per cent additional.

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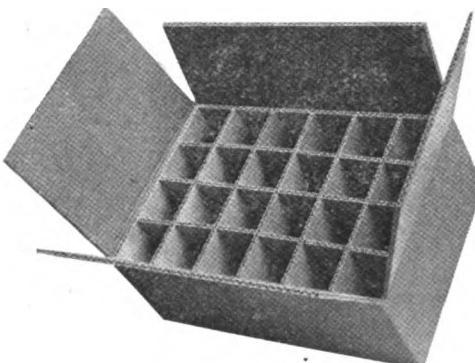


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are used by the most progressive shippers and recommended by the largest supply houses. Their strength and lightness are wonderful. . . . Shipped folded flat.

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- Convenient**
- Compact**
- Damp-proof**
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THE HINDE & DAUCH PAPER CO.

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OHIO**

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To gain some idea of the range of interest and the scope of POPULAR ELECTRICITY AND THE WORLD'S ADVANCE, note this brief summary of contents.

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Await You in Every Issue or

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GLEANINGS IN BEE CULTURE gives the most up-to-date methods in beekeeping in articles written by experienced beekeepers in addition to the regular departments—STRAY STRAWS, BEEKEEPING IN CALIFORNIA, NOTES FROM CANADA, BEEKEEPING AMONG THE ROCKIES, CONVERSATIONS WITH DOOLITTLE, BEEKEEPING IN THE SOUTHWEST, SIFTINGS, GENERAL CORRESPONDENCE, EDITORIAL DEPARTMENT, HOME DEPARTMENT, HEADS OF GRAIN FROM DIFFERENT FIELDS, and HIGH-PRESSURE GARDENING.

Attractive in form. Good illustrations. 36 pages of reading matter in each issue. 24 numbers each year.

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Gleanings in Bee Culture, Regular price, \$1.00 a year.

BOTH FOR ONE YEAR AT CLUBBING RATE OF \$1.85.

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THE A. I. ROOT COMPANY, MEDINA, OHIO

Canadian postage 65c a year additional; foreign postage \$1.35 additional.

Beeswax Wanted!

We Expect to Use
SEVENTY TONS

of beeswax during the next SIX MONTHS, and we have on hand less than twenty tons. We offer for good average wax, delivered at Medina, 32 cts. CASH, 34 cts. TRADE. If you have any good wax to sell write to us or ship it by freight. Send us shipping receipt, giving us gross weight also net weight shipped. Be sure to mark your shipment so we can identify it when received.

Beeswax Worked into Foundation

If you want your wax worked into foundation we are prepared to do this for you at prices equal to those made by other standard manufacturers. Write for price if interested.

The A. I. Root Co., Medina, Ohio

New Goods Arriving!

We are getting our stock for next season, and should be glad to have your order for any supplies you are to use next year. A folder, with new prices, will be mailed you on request. . .

The A. I. Root Co., Syracuse, N. Y.

"If goods are wanted quick, send to Pouder."

ESTABLISHED 1889

Bee Supplies

Bees in this zone are in winter quarters with a bounteous supply of natural winter stores, and I believe that no other feature is quite so important as regards safe wintering as an abundance of wholesome stores. The fall flow was so profuse that in some instances brood-rearing was curtailed early on account of crowded condition, and some strong colonies were weakened on this account. A few losses may result from this condition. The white clover in this zone is in good condition with the exception of a few counties which suffered from drouth. Conditions for ensuing year are very encouraging for both beekeeper and the supply-dealer. The last year will be remembered as a most excellent honey year, and with it came the best demand for honey that has ever been known. I am receiving more inquiries and orders for Root Bee Supplies than ever before during midwinter, and some discounts for early orders are still available. The policy of this house as to prompt shipments and a fair and satisfactory deal will be maintained as heretofore, and I hope to deal with you in a way that will justify your recommending my goods to your neighbor.

WALTER S. POUDER:—*I am more than pleased with your promptness. Kentuckians are generally credited as being quick with a gun, but I do not think the fastest in that line can equal the speed a certain Indiana man uses in shooting out the goods. Those paper honey-jars are certainly the trick for local trade.*

Louisville, Ky.

Yours truly,
OTTO F. RECKTENWALD.

I should like to place in your hands my catalog with 1914 revised prices on bee supplies. Or send a list of your requirements, and let me see if I can not create a saving for you by quoting an estimate. This will place you under no obligations, and it will be one of my pleasures.

I can use more beeswax, and am now paying 31 cents cash or 33 cents in exchange for goods.

Walter S. Pouder

873 Mass. Ave., Indianapolis, Indiana

Special Sale of Honey

WE HAVE produced a fine lot of extracted honey this season from our eight out-yards. In addition to our own honey, we have purchased many other lots from prominent producers, and are now able to offer for prompt shipment the following flavors of extracted honey:

ALFALFA,	ORANGE,
SWEET CLOVER,	LIGHT AMBER,
WHITE CLOVER,	DARK AMBER,
BASSWOOD,	BUCKWHEAT.

Several of the last cars of comb honey which were shipped us in 1913 contained a large number of cases of broken comb honey, caused by the cars being badly handled in transit.

We are obliged to regrade all shipments; and in every case where we found broken combs we melted them up. All the combs that are slightly cracked or have the cappings broken, we put into other cases; and these cases of cracked comb honey, which is practically all produced from white clover, we are offering at a special low price and at prices which we believe will certainly be of interest to you; and we know that, if you will send us in an order, you will be pleased with the honey at the prices we are asking for it.

We have other choice grades of Fancy and No. 1 white comb honey, as well as Fancy and No. 1 amber comb honey, and during these months we are making special prices to our regular trade.

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American Bee Journal, Hamilton, Illinois

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NO. 2

Editorial

OUR bees on the Apalachicola River, Fla., are doing finely. Ti-ti is just about ready to open up, when the bees will have natural pollen and nectar.

SOME recent reports go to show that California is having refreshing rains. Whether these are going to insure a crop of mountain-sage honey or not we have not yet been advised.

WHEN we read the telegraphic reports of the floods in Texas we wondered how our bees on the Apalachicola River would fare, because they are on platforms but slightly above high-water level on the banks of the river. Fortunately for us, however, the floods did not visit that section.

THE FLOODS IN TEXAS.

In this issue, page 47, Louis H. Scholl tells of the awful destruction wrought by the floods in certain parts of Texas; of how he and certain other beekeepers lost many hundred colonies. The sympathy of our readers, we know, will go out to them.

OUR COVER PICTURE.

THE cover picture for this issue shows Benjamin J. Mayo and his son at the edge of their picturesque apiary. The engraving, page 62, shows a larger portion of the apiary situated in a well-sheltered location. In addition to the particulars given in the article by C. B. Morris, page 59, Mr. Mayo himself writes as follows:

I cleared a small part of my woods and made a beautiful grove for my growing apiary (as shown on the cover page); but as the bees did not build up as rapidly as I thought they should, I moved some into my orchard, a more open place (as seen by the picture on p. 62), where they got more sunlight. This solved the difficulty, as those in the orchard did far better than those in the grove, shaded so much. My spring count (1912) found me with fifteen hives of the dovetail pattern.

I should also like to add my testimonial to the plan of Mr. Arthur C. Miller of introducing queens by smoke, as I have tried it with twenty queens and find it works every time.

I have been running for extracted honey only, as I think the honey in this locality is too dark for

comb. This I have been selling in three-pound packages at fifty cents, and have no difficulty in disposing of all of it. I think I increased too fast last season as my crop was not what I thought it should have been; but I did fairly well, getting 1000 lbs.

Metuchen, N. J., Oct. 81.

THAT WINTER NEST AGAIN.

We recently received a letter from Mr. George B. Howe, of Black River, N. Y., one of the most prominent honey-producers and queen-breeders of that State, and a very close observer. Among other things he refers to the winter nest. As it confirms our position we present it here for what it is worth.

I wish to say something on this winter-nest question. You are right. I go to the bee for all my knowledge. Go to any hive—better yet, a bee-tree; cut said tree and see what condition you find. Back to the hive! Unless you have fed said colony beyond all bee reason, again you will find that winter nest, and in cold weather a bee and sometimes more than one bee in a cell. The colder the time, the more compact that cluster will be; and unless you have studied this question you will not believe it possible for a large colony to get into so small a space when it is zero or below. The age of the queen does not change the color of her drones. The color of the comb may make a slight difference. Some claim this.

GEORGE B. HOWE.

THE SPECIAL NUMBERS FOR 1914.

FOR the last two years we have received occasional letters from readers who have overlooked announcements regarding special numbers, and who, after reading some one of the special numbers, jumped to the conclusion that GLEANINGS has "gone daffy" on the special subject in question. For instance, after the publication of our last poultry number, which was our regular Feb. 15th issue for 1912, we received a letter from a subscriber complaining because of the undue amount of space we were giving to the question of the raising of chickens. He pointed out that our Feb. 15th issue was almost all on that subject! Not being a poultry-man he was naturally afraid we were going to get too far away from the straight and narrow path of beekeeping.

As there have been other letters each year from those of our readers who have not noticed the announcement of our plan, we

wish to mention again the list of special numbers for 1914. January 1 (last issue), bees and poultry; February 1, bees and fruit; March 1, beekeeping in cities; April 1, breeding; June 1, moving bees; August 1, crop and market reports; September 1, wintering.

THE NEXT NATIONAL CONVENTION TO BE HELD

AT ST. LOUIS, FEB. 17—19.

OUR readers will notice elsewhere that the next convention of the National Beekeepers' Association will be held at St. Louis on Feb. 17, 18, and 19. St. Louis has the reputation of being the most centrally located large city in the United States. As it is convenient from the east and west and from the north and south, there ought to be a large attendance. Mr. R. A. Holekamp, of the Holekamp Lumber Co., St. Louis, has been asked to arrange for a hall in which to meet. He writes us that he would appreciate it if those who expect to attend would send him a postal card so that he may arrange for proper hotel accommodations at reduced rates. Mr. Holekamp is an enthusiastic beekeeper and a live wire at conventions. The members of the National, and all others who expect to attend this convention, will do well to get in touch with him immediately. Unfortunately for us the date of this meeting comes when E. R. R. will be in Florida; and this necessarily means that his assistant, H. H. Root, will be doing double duty at Medina. We shall try to have a representative present, and probably arrange for a demonstration of a power-driven extractor with a complete modern extracting equipment, just such as is now used by large producers. This will be given in a separate room or building, apart from the regular convention hall.

We understand that the management is laying plans to make this a big meeting, and a great social meet as well.

MOVING BEES TO THE SOUTHLAND FOR INCREASE; LOOK BEFORE YOU LEAP.

APPARENTLY our experiment of shipping a carload of bees to Florida to make an increase of 100 or 200 per cent is attracting a good deal of attention if we may judge from the correspondence that has been coming in. We desire to say to one and all, do not think of moving a carload of bees south till you have spent a month or so in or near the point where you propose locating. There are three things you should know. (1) It is very important to find a spot that will not overlap on some one else. (2) Make sure that the point is one that will support bees. (3) Learn the locality before moving.

The only way one can make it practicable

to take a carload of bees south is to arrange with some beekeeper already in the vicinity to find you a location that will be advantageous to you and not interfere with the other fellow. A better plan is to go a month ahead and look the situation over. There is plenty of unoccupied territory in the South, providing one will take the pains to find where it is. No beekeeper in the North or elsewhere can afford to go into a locality already overstocked. He will be interfering with his own interests, and at the same time cut down the yield of the local residents, and at the same time incur their ill will. This country is so large that there is room enough for all; but there is not room enough for a man to put his bees in a location close to another.

It sometimes happens that one can buy out the location of another beekeeper. This is precisely what we did with Mr. A. B. Marchant. He had a location apart from every one else which he was willing to sell. This was secured, and that is where our bees are now placed.

An experienced beekeeper from the North would be working to a great disadvantage if he does not know the bee flora of the new bee country. This is the reason he should spend some time in the proposed location in advance and before he moves the bees. Beekeeping in the South is not the same as beekeeping in the North. Any one who attempts to move a car of bees South without the proper knowledge of the new conditions will fully comprehend when it is too late that "Experience is a good school, but the tuition is high."

THE NEW METHOD OF INTRODUCING WITH SMOKE; REQUEENING WITHOUT DEQUEENING.

We call attention to the suggestive article by Mr. A. C. Miller, p. 50 of this issue, entitled "The Economics of Requeening." Our correspondent figures that the direct loss of queens introduced by the cage plan is about 40 per cent. This may be true, perhaps, when we consider queens sent through the mails and introduced by persons of little or no experience; but our loss does not exceed 10 per cent, and is usually less. The loss by the average beekeeper is greater, perhaps, because he is over-solicitous in that he keeps opening the hive and peeping into it to see how the new queen is coming on. If he paid three or four dollars for her, and he is a beginner with only two colonies, he will open the hive every few hours, and perhaps he will try to hasten the operation. Such a procedure only makes the matter worse. Our best results from introducing by the cage plan have invariably been secured by

leaving the colony severely alone, allowing several days to elapse *after* the queen is supposed to have emerged from her cage. Repeatedly have we seen queens balled that had been out of the hive only a few hours. Naturally enough, she is shy, and the act of opening the new hive frightens her the more. If she starts to run, or skulks, and especially if she pipes or squeals, she invites attack, with the result that she is promptly balled. Years ago, when we were rearing queens, and introducing, we found so many cases of balling immediately after opening the hive that we concluded it was a bad practice. Now, then, to return:

If Mr. Miller figures in the class of beginners who will tinker with their bees too much while the process of introducing is going on, the loss may be as great as 40 per cent; but we do not believe that, with the experienced beekeeper, it will be over 10 per cent. We remember one large producer ordered 100 queens. He wrote back and ordered ten more queens after he had introduced the hundred, saying he had bad luck. He had lost ten queens by the cage plan, and he wanted ten more. He intimated that some of the queens might have been old virgins, and if that were true it would account for his failure.

AN IMPORTANT CASE OF HONEY ADULTERATION WON BY THE GOVERNMENT.

WHEN the new pure-food law went into effect, and later the pure-food laws in the various States, the adulterations of honey, particularly with glucose, were stopped or almost entirely so. Prior to that time a large part of the bottled honey on the market put out by the packing-houses was adulterated with glucose, and there was no way to stop it. In the mean time the honest beekeeper had to compete with this cheap twangy stuff; and as the grocer could buy the glucose mixtures for less money, the beekeeper was given a poor show. But since the enactment of the national pure-food law (thanks to Dr. Wiley) glucose adulteration has, to a great extent, ceased. To some extent cane-sugar syrup has been used as an adulterant, but to only a very limited extent, because glucose was so much cheaper. As it was comparatively easy to detect the addition of cane sugar or glucose—especially the latter—the honey adulterators were compelled to quit using them or get into trouble with Uncle Sam.

But later on there came a species of adulteration that was very difficult to detect. A process had been discovered for making what is called "invert sugar." Although an artificial product, this came very near an-

swering the chemical tests for a pure honey. The adulterators then saw their opportunity to put invert sugar into honey and sell the combination for much less than any pure honey could be sold for. They felt safe from detection because they believed no chemist would positively be able to show up the fraud. But it was not long before the Government chemists were able to do so, and the adulterators were stopped. Shortly after, however, the chemists of the manufacturers discovered another process for making a new invert sugar that they felt sure would defy the best pure-food chemists of the country, and for a time the Government men were up against a hard proposition. But the Bureau of Chemistry, Washington, D. C., kept busy, and finally discovered several methods by which even this new invert sugar could be detected when mixed with honey.

A recent test case before the United States court held in Philadelphia was tried and won by the Government. This is one of the most important cases ever held; and the fact that the Government is now able to detect any form of invert sugar when mixed with honey or any other kind of sweet is going to mean much to the beekeeping interests, not only in the United States but to the whole world, for Uncle Sam will see to it that all the chemists are properly informed as to the methods he used in detecting invert-sugar adulteration in honey.

So important and far reaching was this case that we asked our chemist, Mr. Selser, who was not only present but a witness at the trial, to prepare a technical statement showing the methods that were used by the Government to prove the presence of invert sugar in the honey that was seized. Before doing so he shows the difference between the two invert sugars.

Furfural was so pronounced in the conversion of the dextrose of cane and beet sugar into the first invert sugar or levulose and dextrose that Browne & Fehles' chemical tests soon exposed the fraud. The food adulterators soon discovered their mistake. They then, by using a small per cent of tartaric or other acids, and heating at a low temperature, accomplished the inversion without producing any furfural. They now felt they had an invert sugar that the pure-food chemist could not detect from the natural article, honey. They became very bold through the assurance of their chemists.

About January, 1912, a large syrup and honey company of New York, doing a business of a quarter of a million a year in mixing honey, etc., sold and shipped to a Philadelphia dealer in pure honey six cases of what he bought as pure honey, and labeled "Choice Pure Strained Honey." The government officers, waiting for the opportunity, at once seized the shipment as misbranded and adulterated. This New York firm, evidently, were so sure their adulteration of honey with invert sugar could not be detected that they employed the highest-priced and best corporation lawyers doing a large business in

the United States Supreme Court, along with the best expert chemists they could find. The Government, finding that the defendant would not submit to the fine and penalty, and realizing that it would be a test case of chemist against chemist, had its two United States District Attorneys in Philadelphia and its chief Prosecuting Attorney from Washington prepare the case for trial. The Government called only expert chemists, its own Chief Chemist with his three assistants from the Sugar Laboratory at Washington, making all its pure-food analyses; its Chief Chemist in the Philadelphia laboratory, and the best Government expert on honey analysis in the United States, brought from Seattle, Wash., and one expert from civil life, who has spent about a quarter of a century on the analysis and natural composition of pure honeys. There were thus arrayed legal and chemical experts against legal and chemical experts, resulting in the cost to each side of many thousands of dollars, from which the beekeeper will get a lasting benefit.

Every legal obstacle was thrown in the way, and many of the expert chemical opinions challenged by the defense, with a counter chemical expert's opinion, and, as a result, the trial which might have been concluded in a single day lasted for about ten days.

For those who may be interested in the chemical side of the case, and others who might feel there is yet a chance of safety in mixing their honey with this new invert sugar made with tartaric acid, we give a brief outline of the chemical lines upon which the case was fought and won.

The first and most important fact brought out in the testimony was the difference between *natural* invert sugar (honey) and *artificial* invert sugar made by the use of tartaric acid. Judge Holland was especially interested in the line of testimony on this point, questioning the witness again and again. The Government chemists showed that all natural honeys contain soluble salts and basic acids. They had a table of the honeys of the world gathered in Washington, showing the variance of these salts and acids in the honey of all varieties. The defense claimed their honey was 80 per cent Cuban and 20 per cent buckwheat; but the government showed that there could not have been over 40 per cent of these honeys in the sample, since the sample was just in that proportion deficient in these soluble salts and basic acids. This point was contested by the defendant on the ground that some mineral salts had been extracted with the dirt when it was heated and strained, and that this heating and straining would account for the deficiency. The Government admitted that, while some mineral salts could be extracted with the dirt, yet the salts that the Government chemists showed deficient was in *solution*, and, if present, could not have been eliminated by heating, straining, or filtering.

The Government further showed that the inversion in the honey-sac of the honeybee is never quite complete in the case of sweets gathered by the bees from sugar-cane, corn-blossom, honey-dew, or sugar syrup fed to the bees, for the very reason that soluble salts were never present in any of them. This explains why sweets gathered by bees, from the above sources, fail to make a honey that will meet the requirements of the Government standard; but all nectar gathered by the bees, and stored from *pollenized plants or flowers*, has soluble salts in their composition.

Again, the protein test was another strong point in favor of the Government, and an important factor in winning the case.

The Government chemists, in determining the nitrogenous material, by both the ordinary and the Kilderhahl methods, found .14 per cent of protein in a sample seized, where the records show that a normal Cuban honey, of which the defendant claimed the sample was 80 per cent Cuban, had .5 per cent, or $\frac{1}{2}$ of one per cent, while the German government specialists' literature state that .2 per cent is the lowest known protein in any pure honey.

The polariscope test was another hotly contested one. The direct and invert reading at a temperature of 20 Cen. and at 87 Cen., figured on a dry basis, showed the resultant actual difference in the two temperatures to be 23.2. Literature on the subject shows a range of 23 to 33, with an average of 27, clearly showing it to be away below the average, or just what 40 per cent with 60 per cent of invert sugar would allow.

Again, in the tartaric-acid test there was found .08 per cent of tartaric acid in sample, while natural honeys contain only a scanty trace, and in Cuban and buckwheat honeys no tartaric acid is found.

Finally, in the pollen-grain test of the microscope, while it was admitted to be inconclusive, the result corresponded with the small per cent of honey in the sample seized.

We here give part of Judge Holland's charge to the jury, for it is significant:

Gentlemen of the Jury:—Every man, woman, and child in the United States, when he is hungry, needs food; and when he is sick he needs drugs; and the individual citizen is unable to see to it that the food purchased or the drugs purchased are pure, and the Government has taken on itself the work of perfecting that for the whole people, so that this is a contest for pure food for the protection of the individual citizen who has not the facilities or the information to protect himself. It is a very, very beneficial act; but it has no terror for the man (or, rather, the manufacturer) who sells the pure article and brands it what it is. It is a fact, notwithstanding the attempt which did throw a great deal of doubt and uncertainty over the work of the experts in this case, that chemistry has been wrought to such a high point of efficiency that it can be told with certainty, or at any rate with certain degree of certainty, what is contained in almost any substance, whether or not it is pure, or whether or not it has some other substance mixed with it.

You will notice that an article is adulterated if any substance has been substituted, whole or in part. There is no question as to whether the adulteration be deleterious or injurious to the health. The substitution may be beneficial; but the law is to guarantee each citizen that, as a consumer, he shall know, when he desires to purchase a certain article, what he gets and what he pays for. That is the object of the law. It is to protect the consumers against the adulteration or misbranding of their goods and their drugs so that they may be able to rely on what an article is said to contain, and may rely so that they will not be misled by the label.

The Government, in its supervision of matters of this kind, concluded that this particular brand of honey, which is labeled "Excelsior Choice Pure Strained Honey," is not a pure honey, and it seized these six cases, and it now brings this proceeding, charging that it is impure or adulterated in one of its labels, and in the other that it is misbranded. Their label on it, "Choice Pure Strained Honey," is not true, as it contains other matters besides pure honey, and, therefore, it is misbranded. Their expert proved what is alleged.

Now, we are entirely dependent upon the testimony of experts with the sole exception of the defendant himself. The Government experts gave authority, and testified and gave an account of the analysis they made for the purpose of ascertaining what this mixture contained. They stated positively that they made his examination and they gave the result. They started with what they regarded as the most significant analysis, which is the one which produces the ash result, and they went through an entire list of known methods in chemistry by which they can ascertain whether the honey is pure or adulterated. They took Browne & Fehles' tests, and produced part dextrose and levulose, and the polarization in finding tartaric. There were nine tests in all.

As evidence on the side of the Government, you will recall with what intelligence Government experts maintained their position as to the work they had done; and you will judge, of course, of the method in which it was done, and judge whether or not you will accept their conclusion or the conclusion reached by the expert of the defendant.

The jury retired at the close of Judge Holland's charge, and, after deliberating about 50 minutes, brought on a verdict of guilty on both charges of adulterating and misbranding.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

J. E. HAND, thanks for sounding a needed warning note as to feeding sugar, p. 858. Besides the reasons you give against it, there is, I think, another. In honey there are elements not found in sugar (iron, etc.), and these may be of great importance to the health of bees, even though small in quantity.

REPLYING to Thos. P. Bowles, I would say that it is as well to have the same number of sections ready in advance when prospects are poor as when they are good. After a severe drouth, all clover apparently killed, I've had quite a crop; although little or nothing may be expected next year from plants starting from seed next spring. But honey may come from unexpected sources. At any rate, foundation in sections will keep all right till the first good year that comes.

ROBERT HUDSON asks if Caucasians look like hybrids. They look more like blacks—so much so that sometimes an expert may be fooled. There are, however, yellow Caucasians that look more like Italians. [Caucasians look so much like blacks that we do not believe that even experts can tell the difference. Sometimes it is very difficult to distinguish the difference between Carniolans and blacks, although the former have more of a bluish-black appearance than a grayish black.—ED.]

John Phin, recognized authority on agriculture, died of pneumonia at St. Joseph's Hospital in Paterson, N. J. He was 85 years old. It was as a microscopist that he became prominent after retirement from teaching twenty years ago. He wrote more than 200 books on scientific and other subjects.—*Chicago Daily*, Jan. 1, 1914.

ANOTHER good friend gone. He kept abreast of the times in matters apicultural to the last, and not long ago wrote me that he still kept one colony of bees. [We also have been having some delightful correspondence with Mr. John Phin. We first made his acquaintance when we were studying the microscope nearly 40 years ago. We read with delight his book on the subject, and his journal on microscopy, published at the time. We had lost track of him until a recent letter showed that he still maintained his interest in bees. Perhaps some of our older readers will remember that some years ago he got out a dictionary of beekeeping terms.—ED.]

"MR. PRITCHARD believes that hard candy is the best material to feed in an emergency during cold weather," p. 29. No doubt that's right; and with emphasis on the "emergen-

cy," the emergency being when good honey can not be obtained; for I don't believe that sugar candy is ever as good for man or bee as the best honey. [That depends. We have put some colonies on dry combs, and all they have is dry candy. The candy is the thing that induces brood-rearing, and perhaps you would not use it for that reason. What we are after is a large force of bees early in the spring. Sealed honey or sealed stores of any kind do not invite brood-rearing. Indeed, it is our opinion that colonies will go into a state of hibernation on sealed stores more readily than on any other kind of feed that can be given.—ED.]

I DON'T know that I've ever taken much part in the controversy about bees moving eggs, but it never seemed reasonable to me that bees would do such a thing. To be sure, eggs have been reported where no queen could reach; but there was no accompanying affidavit that no laying worker was in the hive. Queen-cells were also found in such places, but I don't remember that any one ever reported that a good queen came from such cells. If the thing had been followed up I should have expected a dead drone to have been found in the cell.

But, June 6, No. 49 swarmed. The queen was caged, and the cage stuck in the entrance. Ten days later, when cells were killed and the queen freed, on one of the combs was found a spot perhaps two inches square rather compactly filled with young brood and eggs. Somewhat curiously, precisely the same thing occurred with No. 14, and with the same dates, only in No. 14 three queen-cells were started with very young larvae. Here was my chance to see what would come from the brood in that comb, and especially from those queen-cells. I put the comb in an upper story over an excluder, and some time after the cells were sealed I tore one of them open. The inmate didn't look like a drone. I put the other two in a nursery, and in due time put the resulting queens—for any thing I could see they looked like any other queens—into nuclei, and when they were laying they were introduced into Nos. 6 and 27, and, so far as I know, they are doing duty as faithful sovereigns in those two colonies to-day. Now, will some obliging friend with a better stock of argument than I possess please come to my aid and help to explain how all this happened without admitting that the bees carried eggs dropped by the queen while in the cage?

SIFTINGS

J. E. CRANE, Middlebury, Vt.

I hope the shipping of bees to Florida by the Root Co. may prove a grand success. We are all interested.

• • •

The most interesting page in GLEANINGS for Nov. 1 is the last one devoted to temperature rather than bees. Oh, my! how it does quicken the pulse to read the good news!

• • •

That illustrated article by Prof. Gates, on pages 755 to 759, Nov. 1, is well worth the careful study of beekeepers desiring to make exhibits. Those Connecticut beekeepers are ahead of all the other New England States on honey exhibits, sure.

• • •

Does beekeeping pay? When I read in the A B C some time ago that our friend Dr. Miller had sold from his colonies devoted to the production of section honey an average of \$39.97, I said, "It certainly does—sometimes."

• • •

I have been making beeswax the past week; and from about 480 combs in Langstroth frames I made some 160 lbs. of wax, or 3 1-3 lbs. for each ten frames. I find the secret of success is a good wax-press, plenty of boiling water, and patience.

• • •

What Mr. Porter says, page 819, Nov. 15, about home-made hives and fixtures is well worth careful reading and meditation by all beginners. The shabby hives that many beginners use is enough to try the patience of Job, and do more to discourage prospective beekeepers than almost any thing else.

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The article by Prof. Lovell, page 687, Oct. 1, ought forever to settle the question of the likes and dislikes of bees for certain colors. The reason he gives for bees trying to sting dark objects before white is because they see the dark object more readily—a fact that beekeepers will do well to remember.

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I thought, Mr. Byer, that you lived away up north, almost under the shadow of the north pole, and here you are complaining on page 751, Nov. 1, that you were suffering from torrid heat Oct. 10. The weather was just fine away down here in Vermont at that time—just right to start the clover for next year.

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Dr. Miller makes a good point, p. 740, Nov. 1, when he says it costs 39 per cent more per square foot to rear drones than workers. If we add to this the fact that

drones are large consumers from the day they hatch till they die, while workers make themselves useful from the day they hatch, we see the folly of leaving large blocks of drone comb in our hives.

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On pages 682, 683, Oct. 1, are some illustrations of winter cases that remind me of one I made a year ago to house twelve colonies. It was 8½ feet long by 4½ feet wide. Three colonies were placed in it to face each side four inches from the wall, and about two inches apart. The space between the walls and hives was packed with planer shavings and some between the hives, and ten or twelve inches of shavings above the bees. They wintered perfectly.

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PIECES OF COMB VS. FOUNDATION.

It makes one feel good to read how Mr. J. E. Hand is able to fill his sections with drawn comb, pages 805—807, Nov. 15. It looks as though it would work, too, where one has only a single yard to look after. But when I have six or eight yards to look after it makes my back ache to think of it. One might get drawn combs one year, and fit them into sections during the winter; but then they would be old combs and not look as nice as new, nor work as nicely either. I might say in this connection that I cut down all my partly filled sections to about one inch thick so the bees will build out with new wax the face of the comb from $\frac{1}{4}$ to $\frac{3}{8}$ of an inch, which greatly improves the appearance. I do not seem to have much trouble in getting bees to commence in sections if honey is plentiful in the fields.

MELTED WAX BRUSHED ON TO FOUNDATION TO PREVENT SAGGING.

Mrs. G. N. Wisgate asks, page 620, whether there can not be some way devised easier than wiring frames to prevent sagging of combs. Dr. Miller, page 749, suggests the use of splints, and I should like to inquire as to the experience of those who have coated the upper part of the sheet of foundation with melted wax applied with a brush. It can be applied more quickly than frames can be wired and wires imbedded; and as I saw it practiced by Mr. Poppleton in Florida it appeared to be a success. I placed strong swarms on such foundation sheets without their sagging in the least so far as I could see; but there was little honey coming in at the time. The extra wax is utilized in drawing out the foundation into comb.

Beekeeping in the Southwest

LOUIS SCHOLL, New Braunfels, Texas.

ROSELLE JELLY, AND ADVERTISING IT.

It has not been very long since our senior editor had much to say about "roselle" and its culture. Not until recently, however, have I seen this plant grown to any extent, and the fruit made into delicious jellies and placed on the market. At one place I saw some four acres of roselle maturing its red, acid-flavored fruits in remarkable abundance. The plants averaged about six feet in height, spreading over the ground about five feet, and even more where they grew near irrigation ditches.

The product put out is a superior pure-food article, very clear and beautiful, red in color, and put up in glass jars nicely labeled, making an attractive package.

I noticed it in nearly all of the general stores. At some of the hotels several of these jars were left, one at a time being opened, and left with a spoon in it to be tasted by the patrons. This seemed unique to me, and may be applied in advertising honey to advantage perhaps.

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HEAVY LOSSES THROUGH FLOODS IN TEXAS.

The year 1913 will go down in Texas history as one having a most excessive rainfall and some of the most severe floods ever witnessed in this State. The damage done will run into many millions of dollars, besides the loss of over 150 lives.

Among the first lives lost was the wife and four children of our friend Polk, a prosperous beekeeper at Belton, Texas. When Mr. Polk learned that there was danger of high water near some of his bees he proceeded there, with his oldest son, for the purpose of bringing them to higher ground. The flood came on so rapidly, however, that he was soon cut off from his own home and family, all of whom were lost, leaving him only the one boy who had gone with him. The bees he tried to save were also lost, since the flood reached unexpected proportions. Our sympathy is with this bereaved beekeeper in the loss he has sustained.

OUR OWN LOSSES ALSO HEAVY.

The Brazos River flood, the highest in history, made toys of seven of our eleven apiaries located on the large plantations of this rich river valley. Although the hives were located on high, heavily constructed scaffolds, out of danger of any previous floods, the water, which was 14 feet at most of the locations, swept away every thing.

Our new two-story ironclad honey-house, workshop, and warehouse, 28 by 36 ft., our

manager's residence, a neat city-style home, barn, and all other out-houses, went along also, together with several carloads of supplies, all of our equipment, including wagons and buggies. The two horses, a valuable cow, hogs, and poultry were all drowned, and the entire place left in ruin.

Our manager of apiaries, Mr. H. L. Russell, who has been a most faithful assistant for nearly four years, was with me at New Braunfels, for a few days, making plans for the next year, when the news of the high water came. He started back immediately, requiring almost a week to make the journey, walking the biggest part of the way through flood-swept territory. He had left his family and other relatives at home; and the reader can imagine the frenzied anxiety that possessed him. He had learned that every thing was washed away; but he could not ascertain in any manner the whereabouts of his loved ones from whom he was separated. After reaching there he was only able to find that they had escaped by means of boats they constructed after the water came, and were safe somewhere in an adjoining county. All communication being cut off, it was impossible to locate them, however; and although two weeks have elapsed, he is still separated from his family, and neither do they know his whereabouts.

I am writing this on my way to the stricken district and to these good people who have suffered so much. Although our loss is from \$10,000 to \$12,000, I have given it little thought, because, uppermost in my mind, has been the welfare of these faithful persons; and while I am making slow headway from one halting-place to the next, over the miles and miles of ruined tracks, just replaced to let the first trains pass after more than two weeks of suspended traffic, my anxiety to reach our now ruined former fields of operations is the greater. Although we have lost heavily, Mr. Russell has lost all of his belongings in this terrible flood except the clothes worn by him. But we know that the faithful will receive their reward; and this happy thought is exemplified by the fact in this case that a number of good friends who remembered the Russell family from a few months' residence in my employ at New Braunfels, before Mr. Russell was placed in charge of the apiaries in the Brazos River Valley, have placed in my care a large trunkful of warm clothes that I am to deliver to them upon reaching my destination.

Beekeeping in California

P. C. CHADWICK, Redlands, Cal.

DOES HONEY FROM THE SAME PLANT VARY?

It seems that I am almost alone in my views on the color of honey from the same plant. That part does not bother me as much as do some of the arguments used to prove that I am wrong. Some are not only claiming a difference in the color of honey from the same plant, but have gone further by saying there is also a difference in the body and flavor. No doubt this will be of great advantage to those who have an inferior grade of honey, for they can choose a fancy name and thereby augment the sales of their crop; but it is hardly necessary to state that the true article from which they have borrowed the name must in time suffer. But, according to the trend of the discussion at the present time, they will have quite an array of argument to sustain them. In that case the name white clover, basswood, buckwheat, sage, orange, etc., will mean absolutely nothing. We have a prominent bee-keeper in California who was also long a producer in New York, who says that he has seen the early flow from cultivated buckwheat so light that it could not be told from white clover by sight. He also contends for the difference in color of sage, according to the soil and elevation.

I wish to review briefly Mr. Wesley Foster's argument on p. 838, Dec. 1. I agree that plants are constantly undergoing a change; but I contend that it is not an overnight change. Mr. Foster has the following to say: "The various honeys such as alfalfa, orange, white clover, and basswood, however, *approximate* a certain definite standard." Yet in the Imperial Valley of California we are told that alfalfa runs as low in color as dark amber. Buckwheat in New York as light as white clover, and white clover in New York as dark as buckwheat! Where are we at? Mr. Foster also says. "It is an accepted fact that the climate has an effect on the color of people's skins, hair, eyes, etc. People on the Pacific coast have a different complexion from those in the Rocky Mountain region." Yet in Germany we find light-haired blue-eyed people, while just across the line in France we find them dark-haired and black-eyed. So far as the complexion of people here on the coast being any different from those of the Rocky Mountains is concerned, that is a fallacy.

I had many talks on this color proposition while at the California State convention, for I was the target that several people wanted to shoot at. Nine out of ten agreed that, the heavier the flow from a source, the

lighter the honey. That was my original contention, that we obtain only the *true* nectar from any flower when it is yielding bountifully; at other times it can not be judged as pure, from the fact that other plants are yielding enough to change the color. Take the button sage, for example. No amount of preaching can make me believe that it is not water-white in its purity, for I have studied this flora for ten years under all conditions; yet there are some years when we get the pure water-white grade, though most of the nectar is from that source. The button sage, under the influence of warm sunny weather, will yield a perfect stream of nectar, so to speak, while a dark, cloudy, cool day will cause the wild alfalfa to yield more and the sage less; then the bees go to the wild alfalfa, and within the period of a few days will often color an extracting of sage honey until it reaches the light-amber class. Strictly speaking, it is not sage honey, yet it contains only sufficient wild alfalfa to throw it off color for a strictly sage product.

A gentleman from Nevada told me that I was mistaken on the color of alfalfa honey—that it varies from white to light amber, the white being secured when there is a heavy flow on, and becoming darker as the flow becomes lighter. I asked him if he was sure his bees were getting *only* alfalfa in the light flow. He admitted that he was not.

In a recent issue of the *Western Honeybee*, "Honey-plants of California" was quoted at some length to break down my arguments; one of the quotations given there I am quoting here: "Page 1017. Mint family. *Marrubium vulgare* L.; horehound. Common weeds of old fields and waste places about farms and villages everywhere in the Coast Ranges, Sacramento, and the San Joaquin valleys and Southern California. Evergreen with us; season May to September. A splendid yielder of dark-amber honey too strong and dark for table use, but is used largely in medicine. The honey is reported by some Ventura County beekeepers to be of a *light color with a greenish tinge*" (my italics). "It is, however, *probably wild-alfalfa honey* with a slight addition of horehound, as the latter is very aromatic." The facts in the matter are what we are after and what we should have. We should also know if all honeys vary according to soil and climate, and to what extent; for if it can be proven that sage honey is at times a light amber I must apologize to a firm of western buyers who quoted light-amber sage.

Conversations with Doolittle

At Borodino, New York.

SOME QUESTIONS ANSWERED.

"What is your experience with raw or boiled linseed oil for coating hives? Would it not be better than paint? Don't your hives get water-soaked without paint or oil?"

Answer.—I have never used clear linseed oil on wood surfaces, but I do not see why it should be better than paint. To paint hives properly, or any thing else, the first coat should always be mainly oil and a very little white lead, or whatever is used to thicken the oil. Thin oil penetrates the wood instead of being absorbed by the pigment used; and when it hardens, it largely prevents moisture passing through the pores. Some seem to think that the propolis which the bees use on the inside of the hive has the same effect as does oil or paint; but this is a mistake, as the thin coating of propolis-varnish which the bees use in all places (excepting on rough surfaces) contracts, checks, or cracks to such a degree when cold weather comes on in the fall, or during cold nights, that it becomes sufficiently porous.

"If shade-boards such as I recommend are used, the sun does not shine on any part of the hive during the hottest part of the day. And any shade-board which will properly shield the hive from the sun will shield it from all storms as well, unless such storms are accompanied by extreme winds; and then the water will only be driven against the bottom part of the hives.

INDUCING LATE BROOD-REARING.

"My bees did not continue to rear brood as late the past fall as they generally do; consequently they went into winter quarters depleted in numbers, and I fear for the results next season. Is it possible to force bees to continue brood-rearing during the fall by feeding such colonies as are not inclined to do so?"

Answer.—It is quite generally supposed that late feeding will induce late breeding, and so it will; but when the laying of the queen has dwindled away the last of August or fore part of September, it takes time to get her started again. Even a natural flow of nectar from the fields, if of short duration, fails to produce brood-rearing after the queen has once stopped laying. Brood-rearing is never carried on during September or October, in this locality, to an extent equal to what it is in May and June, no matter how long feeding is continued, or how good the yield of nectar from the fields may be. And especially is this the case where the laying of the queen has once ceased, preparatory to the bees entering

upon a state of rest for the winter. But continued feeding will start up brood-rearing after a week or ten days have elapsed; and when once started again it will generally be kept up as long as the bees can comfortably take the food without becoming chilled. If we desire brood-rearing to continue into cold weather, it can be kept up well toward winter by feeding regularly each day, and in all cold snaps giving the feed as warm as can be borne by the hand. But after having colonies come out well the next spring, where no eggs were laid by the queen after August 10 to 20, I do not now worry about this matter of late brood-rearing as formerly. Very late breeding often results in prematurely wearing out the vitality of such bees as are of the right age to stand the rigors of winter the most successfully, and in such cases late brood-rearing is a detriment rather than a remedy.

PUTTING FOUNDATION IN BROOD-FRAMES.

"I wish to fill my frames for the brood-chamber of the hives with foundation this winter; but when nailing them up I did not know that it was necessary to have a saw-kerf cut in the under side of the top-bar in order to hold the foundation. What would you do in such a case?"

Answer.—In all the frames I have made during my 40 odd years of beekeeping life I have never used a saw-kerf in one of them, nor do I consider it necessary. Proceed as follows: Upon a board slightly larger than the frame fasten another board, just large enough to slip into the frame easily, and scant half as thick as the top-bar is wide. Put the frame over this "form," then lay on the foundation with its straight edge or side close against the under side of the top-bar. It is well to have a handle of some kind on the under side of the first-named board, when, by holding the whole firmly in the left hand, you can pour from a tablespoon into the angle between the top-bar and the foundation a teaspoonful, or such a matter, of melted wax; and by holding the form in such a way that the melted material will run quickly from one end of the foundation to the other, the same can be fastened in the frame as securely and as perfectly as by any other process. When I first used this plan I turned the frame over and fastened the other side in the same way. But years of fastening only one side has proven that this is not necessary. Keep a vessel of the wax warm over a lamp or in some other convenient way. I use this method even when the frames are well wired.

General Correspondence

THE ECONOMICS OF THE NEW METHODS OF REQUEENING

BY ARTHUR C. MILLER

The editor's kind remarks appended to my article on "Requeening without Dequeening," p. 851, Dec. 1, are encouraging and at the same time suggestive. They suggested to me the fact that the economic importance of this new method as well as that of direct introduction by the smoke plan is being overlooked. Furthermore, the economics of honey production are being sadly neglected. To be sure, a stray item now and then alludes to cost of some process or suggests some saving, but they mostly have to do with the price of supplies, not with the labor, the operative cost.

From the best figures I have been able to obtain, the direct loss of queens put in by the cage plan is about forty per cent, to say nothing of the subsequent loss of maimed and injured queens which occurs later. But not a word is said as to the loss in labor in the several inspections of the colony, nor is more than a passing remark given to the loss from having the colony queenless for three to six or often more days. Then there are those colonies which persistently refuse to accept a queen, sometimes dwindling until they are of no value save to unite with some other colony. By the smoke method of introduction such loss is cut out, nearly one hundred per cent of the queens being accepted, and that immediately on the removal of the old queen. So certain are the results that it is unnecessary to inspect the colony afterward to see if the queen is safe. The aggregate saving throughout the country in cost of queens alone is immense; and if the labor item could be figured it would astound us.

By "Requeening Without Dequeening" we save the labor (costly time) of finding the old queen. If we raise our own queens and raise as many of them as we had to when introducing by the cage method, we can save almost all of that time and thus be far ahead of the cage plan. All that is necessary is to run in the new queen at the proper time, and the next morning look for a dead queen in front of the hive. Occasionally it is the second day before she is thrown out, and now and then longer; but even so, it takes very little time to walk along before the hives and look for a dead queen. They are readily seen, usually having a few workers "nosing" them over. If a system of clipping queens reared one year one way,

say (for example) the left wings, and those of the next year having the right wings clipped, there is never any question as to which queen is thrown out. The veteran can readily distinguish between an old and a young queen; but sometimes the bees have been doing a little superseding unbeknown to the beekeeper, and a young laying queen is thrown out. Clipped wings make identity positive.

I have said, "If we raise as many queens as we had to when using the cage method of introduction." By that method we lost about forty per cent outright, which meant that, out of 100 queens, only 60 are accepted; hence 40 more must be reared to take their place; and if about 40 per cent of those forty are lost twenty or twenty-five more are needed. In other words, under the cage system about twice as many queens had to be raised as were needed, and I have known beekeepers to raise over three times as many, because of the loss of virgins both in introduction and in mating. Just stop and figure the cost of that! Divide it by the number of your colonies and see how much it adds to the cost of your honey per colony and thence per pound.

The reason I said raise as many queens as when operating by the cage method is because my loss when requeening without dequeening is about the same as by the cage method. But I save the expense and annoyance of looking for the old queen and removing her, and all of the queens accepted are "sound in wind and limb," which is not the case by the cage plan.

In the article above alluded to I said (p. 851) that where the queens were supposedly equally matched the bees sometimes took a hand. So far as I have been able to find out, the bees never meddle with either queen unless one runs—and perhaps "pipes"—then balling usually follows. Either queen may do the running.

One item in running queens into colonies having a queen may be an important factor in the results, and it may not; and that is *where* she is run in, whether at one or the other side or in the middle of the entrance. Suppose she is put in at one side and the old queen is at the opposite side, and they do not meet for several days, as may occur; then the new queen has filled up with eggs, and has not the advantage over the old queen which we desire. Also, the old queen may have cut down egg-laying either from age, for a resting-spell, or preparatory to swarming, and thus have a still further advantage over the new comer. These are some of the

things to which I referred when I said I had not determined some factors to my satisfaction.

A little history in connection with this latest thing in requeening will, I believe, be of interest at this time. Some twenty or more years ago Dr. C. C. Miller experimented with putting in ripe cells to cause forced supersEDURE and for the prevention of swarming. I am not sure that he was the first to try that, but I do know that subsequently others, including myself, tried it, and also used virgin queens. The results were far from satisfactory, though Mr. Davenport, I believe, experimented with the same thing and is understood to have had less loss than the rest of us. The use of virgins or cells I believed was economically a mistake; and for that reason, and because of the small success, I abandoned their use, and turned to the use of young laying queens. The change proved wise, and brought success.

Now comes in another bit of history of particular interest to Mr. Allen Latham and myself. For years before we became acquainted we found ourselves working out the same problems and arriving at the same solutions. As time went on we got to comparing notes; and when we failed to agree I always, and I think he generally, went over the problem again and most carefully. In other words, when he agrees with me I feel sure that I am right; and when he does not, I dig for facts to prove one or the other of us wrong. We have had many a long and interesting discussion of sundry matters pertaining to bee culture, and frequently remarked on the interesting fact of our so often tackling the same question and arriving at the same conclusion, each without the knowledge of what the other was doing. One day I asked him why he had been *following* me all these years? For an instant he sort o' gasped; then, catching the twinkle in my eye, he came back with one of his knock-out retorts. Look out for him.

Well, we have both been working on this problem of requeening without dequeening, he with cells and virgins, and I with those and (later) with laying queens. Neither of us said aught to the other of what he was up to, though he told me he was at work on something which he considered of great promise. When I decided to publish what I did I wrote to him for his opinion; and, lo and behold! we again had been working at the same problem. When I say that we agree in believing it one of the most important advances in modern bee culture, and also agree in believing that we will soon make the results as uniform and as certain as

they now are in the smoke method of introducing to queenless colonies, the beekeepers may be assured that they are not chasing any will-o'-the-wisp in following it up.

And this reminds me of a phase of the subject which deeply interested both of us, namely, the requeening of colonies in trees, boxes, and box hives, where the owners for sundry reasons do not want their property disturbed, and where the cost of getting out and transferring the bees is prohibitory. The displacing of black stock under such conditions with good disease-resisting Italians means more than at first thought appears.

Providence, R. I.

BEEKEEPING IN BRITISH COLUMBIA

The Bureau Hive for the Peculiar Weather Conditions

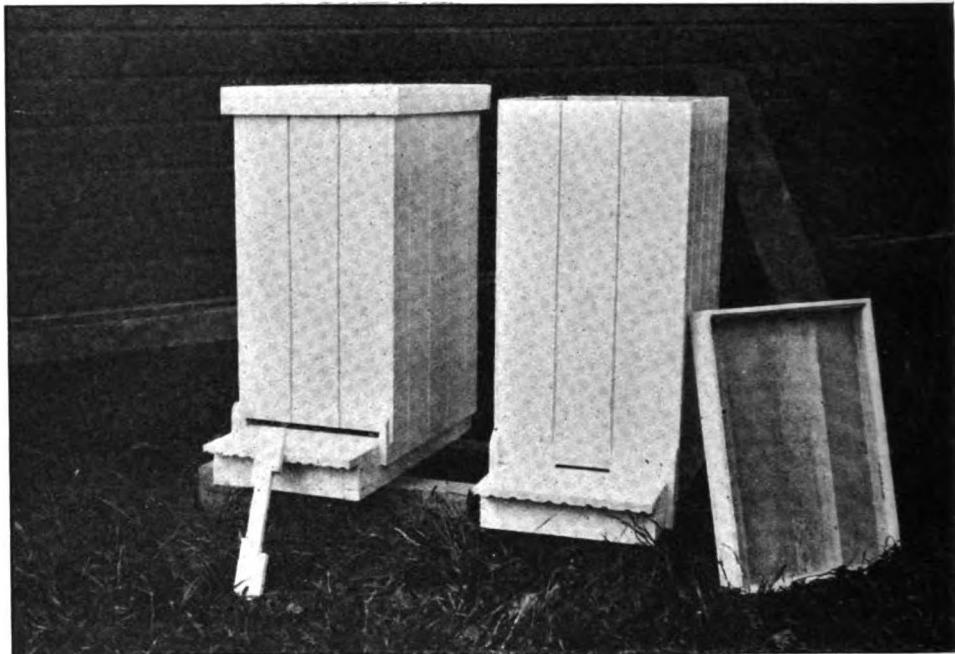
BY F. DUNDAS TODD

Unlike ancient Gaul, which, as schoolboys, we learned was divided into three parts, the big Province of British Columbia is popularly divided into two, generally known as the wet and dry belts. The section of the province under my care as a bee-inspector and instructor in apiculture lies in the wettest part of the province.

Generally speaking, beekeeping is carried on by the let-alone plan. Under my supervision are at least three thousand hives cared for in every conceivable way, and uncared for in ways that are inconceivable. Again and again I have wondered exceedingly how, with such awful lack of protection, a few hundred bees could survive a winter where the thermometer would drop to ten degrees below zero, and where often steady rainfall for days would soak every inch of comb, especially when the most favorable conditions of protection and food supply often result in the extinction of the colony. Some day I may tell my readers some of my experiences and some of the conclusions about wintering I have reached.

Our springs begin along in March, and not infrequently dawdle along in most exasperating fashion until near the end of June. Our nights are always cool, excepting for a few days in the height of summer, and even at their worst they are far from being unpleasant.

Brood-rearing begins in March. In a favorable season an eight-frame hive will be packed with brood by the end of April. At that time a second brood-chamber may be given, and by the first of June both stories will be crammed with bees and brood. I have seen both chambers of a ten-frame hive crowded with bees on April 20.



Front view of Todd's bureau hives modeled after the hive described by Samuel Simmins in a "Modern Bee Farm."

There is another side. A colony the least bit below par will dawdle along in a cold spring until about the beginning of the honey-flow, and then give up the ghost. Last spring (1913) was the worst in twenty years, and it makes my heart sore to open up, as late as the last week of May, hive after hive the whole day long only to find a few hundred bees and a poor queen which is industriously doing her task and laying as many as a dozen eggs in every cell covered by the bees.

For several years I have pondered much on the problems of temperature and damp. I have seen and handled many kinds of covers and hives, but it would appear to be almost impossible to design one that will be waterproof in the valley of the Lower Fraser. Bit by bit I have come to be of the opinion that the real solution will be found in the use of a bureau hive on the lines of the one outlined by Mr. Simmins in his "Modern Bee Farm." I dare say many readers of this journal have wished that Mr. Simmins had given specifications of the bureau; and since I have worked out the details for myself, made one with my own hands, and supervised the making of three by a first-class carpenter, I am in position to give definite data.

My duties keep me all summer a hundred miles and more from my own apiary, so I have been unable to make comparative tests,

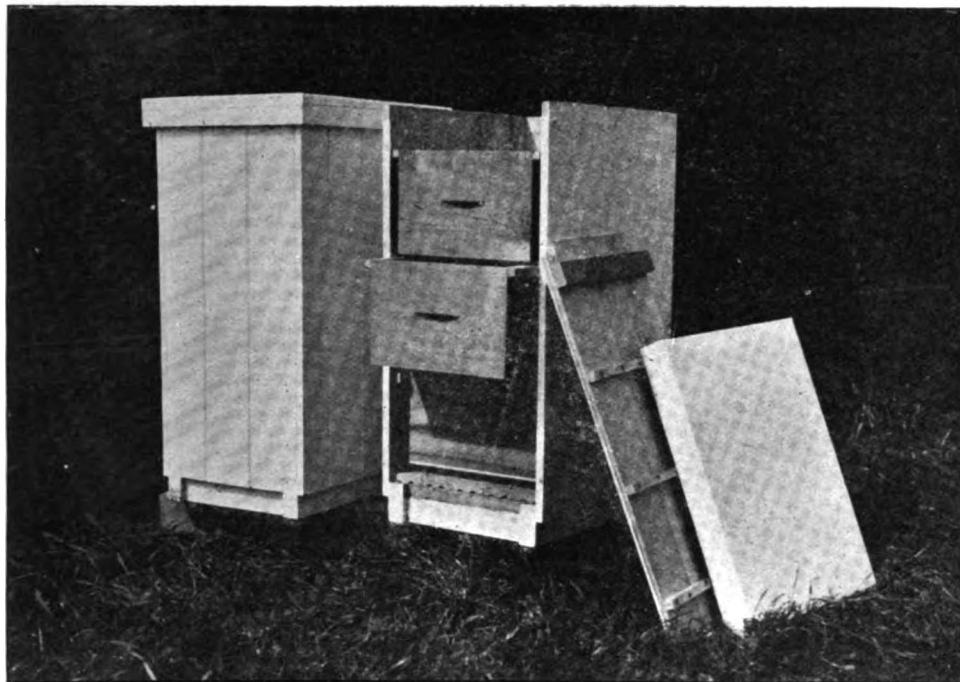
but I have learned a few of its merits. For instance, it will not permit bees to fly out in a warm day with snow on the ground. Such a condition occurred in my territory last winter, and many beekeepers assured me that the snow was literally black with bees. Much of the terrible spring dwindling this season was doubtless started by this cause. I have also learned that it is a good wintering hive, and one in which brood-rearing advances very rapidly in the spring.

The general idea of the bureau hive is to provide an absolutely waterproof shelter for bees, and one in which an air-space surrounds the hive-bodies and so tends to a uniform temperature in the colony. It is also a handy hive to work, as any hive body can be withdrawn for examination without disturbing the others. Furthermore, as all handling is done at the rear of the bureau, any bees that rise from the combs at once fly to the entrance, and so the beekeeper is not annoyed by their buzzing about his person.

My bureaus are made from 4-inch tongue-and-groove lumber smoothed on both sides. A little over 100 lineal feet of this wood is required for each house.

The specifications that follow are for a hive whose outside measurements are $13\frac{7}{8}$ x $19\frac{3}{4}$. They will have to be modified a little for a different size.

Platform is $15\frac{1}{4}$ x $81\frac{1}{4}$; sides are $28\frac{1}{4}$ x 85 ;



Back view of the hives, showing one of the back pieces removed and the middle story pulled out.

front is $15\frac{1}{2} \times 32$; back is $15\frac{1}{2} \times 85$; inside of cover, which is of the telescope variety, is $17 \times 28\frac{1}{4}$.

Bill of goods for one bureau:

Lumber, 120 lineal feet of 4-inch tongue and groove, smooth on both sides.

$\frac{3}{4}$ -inch square wood, 30 lineal feet.

Screws, 5 dozen $1\frac{1}{4}$ -inch steel.

Screws, 1 dozen $1\frac{1}{4}$ -inch brass.

Roof, canvas or galvanized iron.

The hive-bodies are carried on runners attached to the sides of the bureau. The bee-space of $\frac{3}{8}$ inch between sets of frames is determined by the distance between the runners, hence the hive-bodies are made of the same depth as the frames—that is, $9\frac{1}{2}$ inches. To put it another way, when the frames are hanging in the hive-body, both upper and under surfaces are flush with the corresponding edges of the hive.

We therefore start out by reducing the height of the hive bodies to be used to the proper size, then along the upper edge of the long sides we fasten with screws a pair of cleats $\frac{3}{4} \times \frac{3}{4} \times 19\frac{1}{4}$. These cleats carry the hives on runners attached to the sides of the bureau.

The upper surface of the hive-body now under consideration will be $15\frac{1}{2}$ inches across. Allowing $\frac{1}{8}$ inch for play we arrive at $15\frac{1}{2}$ inches as the inside width of the bureau.

As the sides of the bureau are nailed to the sides of the platform it is better to begin with the latter. The upper boards are fastened to a frame made of $1\frac{1}{4} \times 3\frac{1}{2}$ wood set on the narrow edge. The side pieces are 32 inches long, the cross-pieces 12. In nailing the parts together the front cross-piece is set flush with the ends of the side pieces, but the back cross-piece is set in $\frac{1}{4}$ inch. This frame should be exactly $15\frac{1}{2}$ inches wide.

The platform is made $15\frac{1}{2} \times 31\frac{1}{4}$. Both in front and back it is flush with the cross-pieces of the frame.

The sides of the bureau are $23\frac{1}{4} \times 35$. Once the pieces are fitted together and trued up, draw four

lines across at the following distances from one end: 2 inches, $11\frac{1}{2}$, $20\frac{1}{2}$, $30\frac{1}{2}$. The two-inch line marks the point of contact with the upper edge of the platform. It is advisable to nail a $\frac{3}{4}$ -inch-square cleat along this line, to rest on the platform. It is especially helpful when the sides are being fitted. The other three lines mark the upper edge of the runners on which the hive-bodies are carried. These runners are $\frac{3}{4} \times \frac{3}{4} \times 22\frac{1}{4}$ inches long. When in position they leave a blank space of $\frac{1}{4}$ inch at each end. The front and back will butt tight against the ends of the cleats. At this stage it is wisdom to make all fastenings with finishing nails, but for permanency screws should be used, as a heavy weight will have to be carried by these runners.

The front board is $15\frac{1}{2} \times 32$. Across it draw three lines, one $9\frac{1}{4}$, one $18\frac{1}{4}$, one $28\frac{1}{4}$ inches from what is to be the bottom edge of the board. These lines mark the upper edge of the $\frac{3}{4}$ cleats, cleats against which the end of the hive will strike when in position in the bureaus. The top edge of the cleat will be flush with the top surface of the hive-body. To avoid mashing bees when the hive is run home it is better to have a couple of screws projecting a trifle less than $\frac{1}{8}$ inch from the face of the cleats on the front board. It is well to nail a binding cleat of $\frac{3}{4}$ -inch wood along the lower edge of the front board. All cleats are $\frac{3}{4} \times \frac{3}{4} \times 15\frac{1}{2}$ inches.

The back board is $15\frac{1}{2} \times 85$. Across it are drawn four lines, one 2 inches from the bottom end, one $12\frac{1}{2}$, one $21\frac{1}{2}$, and one $31\frac{1}{2}$ inches. The two-inch line marks the lower edge of the fastening-block, which must be strong, say $1 \times 2 \times 15\frac{1}{2}$. The other lines correspond with those on the front board, and mark the upper edge of the cleats $\frac{3}{4} \times \frac{3}{4} \times 15\frac{1}{2}$.

We are now ready to assemble the body of the bureau. First, put the sides in position, the back edge flush with the ends of the projecting sides of the bottom-board, the lower cleats resting on the platform. Fasten temporarily with finishing nails. Next comes the front board. The entrance is to be

exactly one inch high. To make sure of getting the height correct, place a block the proper thickness under the front board. If construction has been carefully done the cleats on the front board will rest snugly on the runner cleats on the side boards. Fasten with finishing nails. When the back is slipped into place it will be found that the projecting ends of the foundation frame will prevent its going home. so pieces to correspond with these ends must be cut out of the back board. These will be about $1\frac{1}{4}$ x 1 $\frac{1}{2}$.

The lower end of the back board is held in place by iron dowels that project from the surface of the bottom-board and about 4 inches from each end. Drill fastening-block. The dowels are easily made by cutting off from a couple of four-inch wire nails pieces 2 $\frac{1}{2}$ inches long, measuring from the point. The position of each is $\frac{1}{2}$ inch from the edge of the bottom-board and about 4 inches from each end. Drill holes for them, then insert the blunt end and drive home, leaving $\frac{1}{2}$ inch projecting. Replace the back board and force it down upon the points of the nails so as to mark the position of the holes. Drill these.

The cover may now be made. The telescope sides, if the cover is a tight fit, will draw all parts of the Bureau tightly together; hence it is better to make the roof first, the exact size being the outside dimensions of the Bureau—that is, 17 $\frac{3}{4}$ x 23 $\frac{3}{4}$ inches. The side pieces of the cover are made of $\frac{3}{4}$ x 2 $\frac{1}{2}$ -inch wood, and are best made with a miter joint. To insure easy fitting it is advisable to chamfer the inside lower edge.

To make the roof perfectly water-tight it should be covered with a zinc or galvanized iron roof, or with canvas to which are applied three coats of paint.

The entrance block is $\frac{3}{4}$ x 3 x 17. On one side is a cut-out $\frac{3}{4}$ x 5; on the other, $\frac{3}{4}$ x 8. We thus have a choice of three different sizes of entrances. In addition, by the use of blocks of wood we can contract as much as we please.

To hold the blocks in position, put lugs on the sides of the hive, the size being $\frac{3}{4}$ x 2 x 6. Cut out a space $\frac{3}{4}$ x 3 to permit the entrance block to fit in.

By slipping the hive bodies into place, one can test the accuracy of the construction. There ought to be a $\frac{3}{8}$ -inch space between each hive-body. The front and back cleats should be flush with the top of the hive opposite. The lower hive should be even with the lower edge of the front board.

When fitting is perfect, remove all pieces and fasten all cleats and runners in place with 1 $\frac{1}{4}$ -inch screws, not forgetting the projecting screws on the front board cleats.

The permanent fastening of the sides and front board is best done with brass screws, as they are not liable to rust.

The above design is suitable for extracted; but by changing the position of the upper runners and cleats it can be made available for section honey.

The quilt should be 15 $\frac{1}{2}$ x 19 $\frac{3}{4}$. Plenty of room is given above the uppermost hive for piling on lots of old sacking to retain the warmth. On very hot days upward ventilation is secured by turning back the rear end of the quilt and prying up the cover a little.

To preserve the woodwork of the foundation frame it is advisable to set the bureau on cross-pieces of lumber.

The three hives I had made early in June are now in the care of three beekeepers in my territory. British Columbia readers may be interested to know where they are locat-

ed. One is at the experiment farm at Agassiz; one is under the care of Wilfred Smith, of Dewdney; the third is in the apiary of John Reagh, Ladner. The latter is a bee-keeper of twenty years' experience who successfully manages a back-yard apiary of about 40 colonies in a very tricky locality. Wilfred Smith is a young man of twenty-one who last year took over the home apiary of thirty colonies that had been moderately neglected, and beat his dad out of his boots, much to dad's delight. The superintendent of the experiment farm is keenly interested in bees, but, unfortunately, is overwhelmed with the care of many things, and so has too often to attend to the bees at odd moments. But somehow I feel that the very variety in the conditions will be all the better for the test. All have one condition in common—cool nights and plenty of rainfall.

On July 28 Wilfred Smith reported. "For the coast district it looks as if the hive is perfection itself. It does not seem to be affected by rapid changes of temperature such as cold nights after a warm day. The bees never hang out in front, no matter how hot the weather. (This, by the way, is my own experience, so far as I have had opportunity to notice.) Brood-rearing never ceases, and is reared right up to the outside walls of the hive body. In a single-walled ten-frame hive, you know, the two outside frames generally contain no brood. In an eight the inner surface of the second frame is used for brood."

The real test will be the wintering and springing. The results I should be able to report by July.

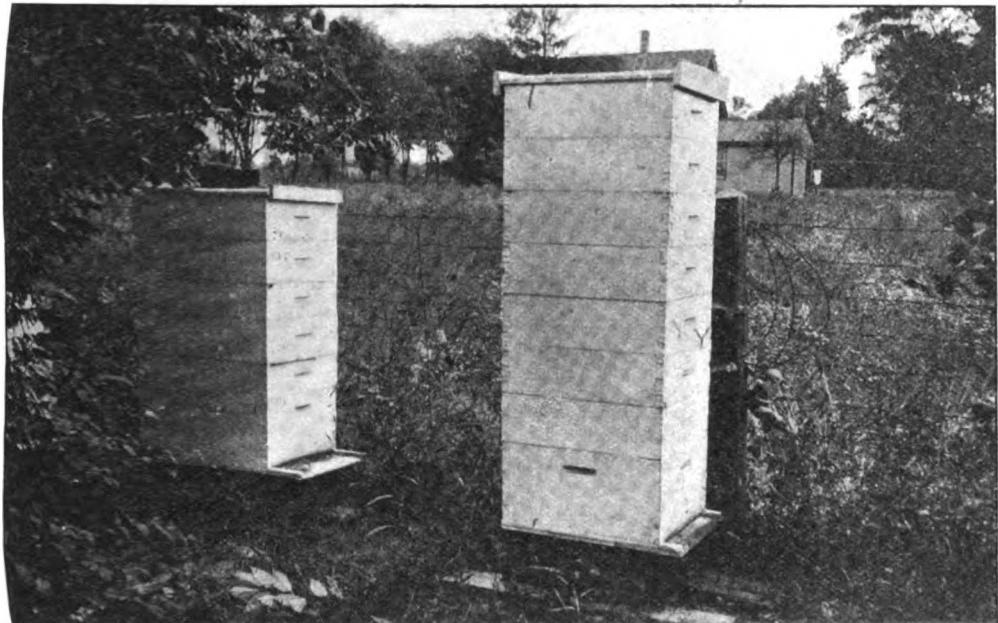
Victoria, B. C.

REPORT OF THE MICHIGAN BEE-KEEPERS' CONVENTION HELD AT DETROIT, DEC. 10, 11, 1913

BY G. A. OFFINEER

The convention was opened by a very pleasing address by President Jenner E. Morse, of Saginaw, in which he welcomed the beekeepers at the convention, and brought forward in a very prominent way the advantages of the friendly spirit which should exist between beekeepers.

He was followed by an address, "The Production and Sale of Comb Honey," by Mr. Leonard Griggs, of Flint, Mich., who spoke at length on the production of honey, both comb and extracted. He advocated the use of the double-walled hive for the wintering of bees, and also for the production of honey, both comb and extracted. He ships all of his honey by freight, packing the comb honey in the regular way and the



Colony belonging to H. F. Edsall, Hammonton, N. J., that filled in 1913 seven supers, making a total of 224 4 x 5 sections. That's going some.

extracted in 60-pound tin cans. He favored selling to the wholesaler in preference to the commission man, or direct to the retail trade. During his speech he said that he expects to buy a power extractor and to increase the number of his apiaries so that he can produce much more honey than he did this season, this season's production amounting to 35,000 lbs.

"The Relation of Beekeepers and the Fruit-grower" was presented by Mr. R. H. Pettit, of Lansing, Mich., Professor of Entomology in the Michigan Agricultural College. With the aid of lantern slides he brought before the convention the benefit to fruit-growers by having bees in their neighborhood. His talk was followed by a question-box, in which the whole convention took part in a general discussion of the topic.

The evening session was opened by an address by Mr. E. B. Tyrrell, Detroit, Secretary of the National Beekeepers' Association, on "Imagination as Applied to the Bee Business." Mr. Tyrrell mentioned the instance of the Root Company sending bees to Florida as being the result of some one's imagination being put to the test for the benefit of the beekeeping industry.

Mr. J. Pomeroy Munson, of Grand Rapids, President of the Michigan State Horticultural Society, spoke on "The Relation between the Fruit-grower and the Beekeep-

er," and dwelt largely on the subject of bees being poisoned by spraying, and also on the so-called danger of bees spoiling ripe fruit.

Prof. F. E. Millen, of Lansing, State Inspector of Apiaries, gave a long talk on "Foul Brood of Different Kinds, and Method of Treatment," covering the subject very thoroughly, and answering the many questions asked him. He urged the co-operation of every beekeeper, and the assistance of every person to help get control of the disease in Michigan.

Mr. A. G. Woodman, of Grand Rapids, gave an attractive demonstration of a new machine for fastening foundation in sections, which seemed to interest many members, the machine putting starters in both top and bottom, and folding the sections in one operation.

Thursday's meeting was opened with an address by Prof. Morley Pettit, Guelph, Ontario, of the Ontario Agricultural College, and also Secretary of the Ontario Beekeepers' Association. His address dwelt largely on the relation of the different associations in beekeeping, on how to procure new members, and on the bee industry or the development of the bee industry in general. His address was received with much applause, and many questions were asked.

The subject of "Wintering Bees in the Cellar" was thoroughly discussed by Mr. David Running, of Filion. He is vice-presi-

dent of the Michigan Beekeepers' Association. He discussed the subject very thoroughly from the conditions in his own locality and those of his own apiary, answering many questions on the wintering proposition.

Mr. Ira B. Bartlett, of East Jordan, who was to speak on "Wintering Bees on Summer Stands," was absent, and a paper on the subject was read by the Secretary.

"How to Manage 500 Colonies for Extracted Honey with the Least Labor" was the subject of an address by Mr. C. P. Dadant, Hamilton, Ill. His talk was very pleasing, and he answered the many questions asked him on the production of extracted honey, in a thorough manner.

The afternoon session, which was the closing session of the meeting, was given mostly to business of the Association and the election of new officers. By a unanimous vote of the convention the Secretary, Mr. O. H. Schmidt, Bay City, was instructed to cast the vote re-electing the entire list of officers of the previous year. It also elected the President, Mr. Jenner E. Morse, as the next delegate to the National Association, and the place of the next Michigan convention is Lansing, at the Agricultural College.

FITTING SUPERS TO ODD-SIZED FRAMES

BY R. F. HOLTERMANN

There are two distinct classes of beekeepers. Those in one class have every frame in the apiary the same size, and even of the same make, the brood-chambers uniform, and the upper stories of the same capacity and size. By that I mean the frames are not only of the Langstroth dimensions, but they are all either Hoffman, staple-spaced, or not self-spacing at all.

On the other hand, the beekeepers of the other class buy almost any thing which is a beehive, not because the bees are in good shape and they get them at the right price, and intend to put them into other hives as soon as time or perhaps even money will permit, but because a hive is a hive, and the matter of uniformity or interchangeable-ness does not enter into their calculation. Those of the latter class never make much headway in beekeeping.

To the first class I aim to belong; but I have bought a good many colonies of bees, and in that way have many frames which, while of the Langstroth type, are not staple-spaced, but spaced by the Hoffman method, and some are not self-spaced at all. Unless a colony has crooked combs or lack of time does not permit transferring, I aim to get

every one into the twelve-frame Langstroth hive soon after buying. However, there have been times when I have had to fit a super upon a hive which did not fit it for perhaps either length or width, and necessity has schooled me to do this with a very fair amount of success.

If a hive is not wide enough for the super, the queen-excluder can be made to stick over on each side (the width of the rim is generally $\frac{1}{8}$ inch), or a cleat can be tacked on each side of the hive. The same can be done at the front of the hive. The difficulty here is with the cover; and the only way out of this is to take some roofing-paper, tack it on a rim, and put the previous cover on top of this. At the season of the year when supers are on, this answers fairly well.

Brantford, Canada.

ISLE-OF-WIGHT DISEASE ABATING

A Criticism of Some of the Statements Made by Joseph Tinsely in the Sept. 15th Issue

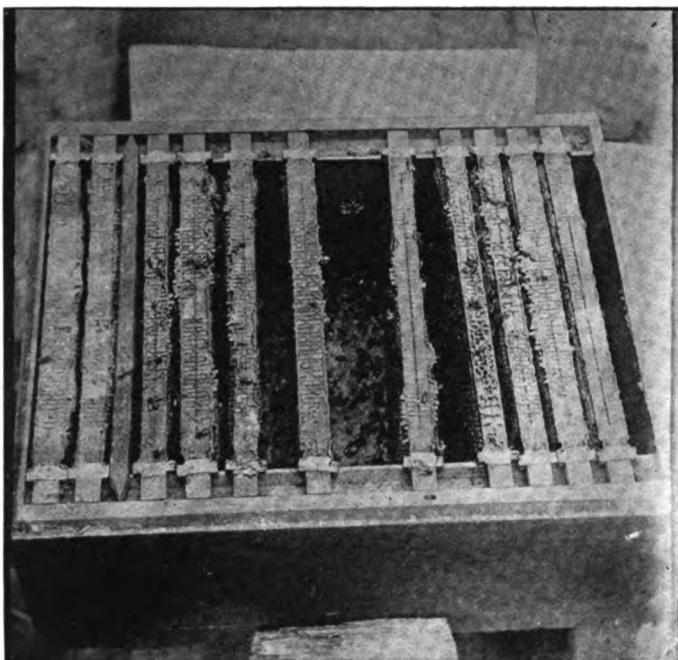
BY JOHN SMALLWOOD

Mr. Tinsely's experiences, p. 647, Sept. 15, are so diametrically opposed to those of others and to my own that I feel compelled (lest there should be any mistake) in default of some one better to take up the cudgel myself and dispute them. But first let me say that the rock-bottom and exhaustive authority on this question is the Report of the Board of Agriculture (price 1 shilling, post free, from the Board); and as there is a revision of it published this year it is the last word on the subject.

Let us notice especially the first paragraph of your correspondent's letter. Writing of the disease he remarks, "It shows no sign of abating." It is evident the writer either is too careless or else has not taken the trouble to acquaint himself with the truth.

Unquestionably during this current year the scourge has much abated. Better climatic conditions, an abundant yield, and also probably because the weak colonies have been wiped out, are the possible reasons for the improvement. I should very much have liked to give official statistics; but as there are none published, this is impossible. I must, therefore, prove my assertion from other sources.

As expert (or inspector) for two counties, Oxford and Middlesex, the latter of which lost 80 per cent of the colonies in 1910-11, my personal visits to our subscribers have occupied me from the early spring until the date at which I am writing. I have found very few new cases: in some instances even the bees have seemed to cure themselves, and



Colony killed by Isle-of-Wight disease.

unquestionably the colonies compare favorably with the two previous years.

And I have other interesting evidence. When the pestilence was at its height, every morning the *British Bee Journal* received quite a consignment of samples of dead bees on which to adjudicate the cause of their demise—a kind of coroner's inquest. Now, the *Bee Journal* informs me, very few are sent; further, callers and correspondents from all parts of the kingdom write and speak of the abatement of the disease and the marked improvement. I think, therefore, we may comfort ourselves very reasonably with the hope that we are through with one of those cycles of years in which this disease appears. In no way is your correspondent's statement true, that it shows no sign of abating.

London, Eng.

MORE ABOUT THE ISLE-OF-WIGHT DISEASE

BY W. HERROD
Junior Editor *British Bee Journal*

I notice on p. 647, Sept. 15, an article on the above by Joseph Tinsely which is most misleading. It is a pity that such canards should get into a paper of GLEANINGS' standard. Your correspondent is a little careless in what he says, nor does he take

the trouble to verify the statements made to him by others.

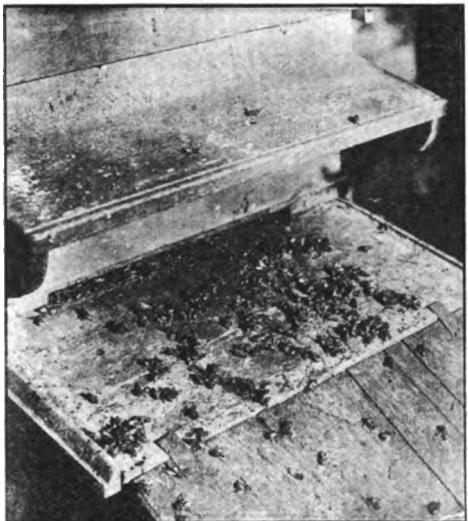
In the first place, his statement that "the disease shows no sign of abating" is entirely wrong. In my capacity as junior editor of the *British Bee Journal* I claim to have the best opportunity of any one in Great Britain for judging this, and I can assure you it is abating. In some districts it has disappeared altogether. Take, as an instance, the apiary at Swanley, which he mentions. This was attacked in 1910, but there has been no outbreak since then.

Right from the commencement of the disease, bees have succumbed from it in

winter as well as summer. He speaks of the bees "seizing small pieces of grass and weeds to raise themselves higher where they clustered in knots." Can anybody understand what he means? Fancy a knot of bees clustering on a blade of grass! What really happens is that the bees cluster in knots on the alighting-board and on the ground. His illustrations of dead bees, etc., are misleading. Similar ones could be taken at any time by any beekeeper. The pictures I send show diseased bees actually clustering on the alighting-board; a colony dead, and the staining of the outside of the hive, which occurs far more frequently than staining inside.

There is no conflict of opinion as to cures. A number of beekeepers are trying hard to find a remedy, and the rest are praying that they may be successful.

If your correspondent knew as I do the tremendous amount of work done by the Board of Agriculture he would not make the remarks he does. One thing they have proved conclusively is that the disease has been spread by careless and unscrupulous beekeepers, and they state it is impossible to stamp it out until a "Disease of Bees Act" is obtained. Your correspondent is one of those fighting against this being obtained, as will be seen from the following under his



Alighting-board of colony afflicted with Isle-of-Wight disease, showing the bees gathered together in knots.

name in the Staffordshire *Chronicle* of Aug. 2, 1913:

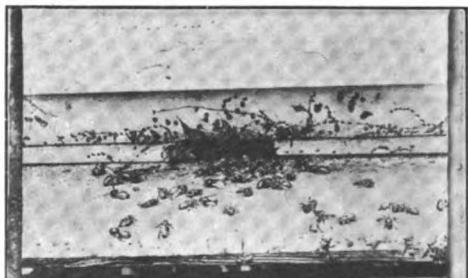
It is cause for congratulation that the Bee-disease Bill has been dropped this session.

Then to show how inconsistent he is, compare the following paragraph from the same paper with the article written in GLEANINGS:

To show the fallacy of hastening such legislation, it is now candidly admitted that in many cases of Isle-of-Wight disease, the bees will overcome the pest if given time; and I have also proved this with my many experiments. Had legislation been in existence, many excellent colonies would have been destroyed.

In two or three counties in England there has been such a wholesale destroying of colonies that it is not possible to raise a honey show this year and Warwickshire is one of them. One can not help but think that too much has been made of the disease, and that many stocks have been destroyed that had no Isle-of-Wight disease at all.

Now, any one with the slightest experience of Isle-of-Wight disease knows that, once a stock is attacked, it is doomed.



Entrance of a hive containing a colony afflicted with the Isle-of-Wight disease. Note the staining of the front of the hive.

His statement that Italian bees are not affected is as inaccurate as the rest of his remarks. There are not many Italian bees kept in Great Britain, so that it is difficult to make a comparison. The disease is no respecter of the race of bees, and I have had a number of specimens of Italian and Carniolan bees sent me which were badly affected.

He mentions one county where 500 colonies perished. I can tell him the number in that county is thousands and not hundreds, and also that his informant wrote in a contemporary in July, 1911, "I shall be able to go on and keep my bees and not let them die of disease as was the case at Swanley." That boast has not been fulfilled, as his apiary is among those wiped out in the county mentioned. It is the gross ignorance of people of this description which is the means of spreading disease in this country.

Then with regard to the queen he states that "it is a peculiarity of the disease she is the last to die," but gives no reason for this. Surely if he had studied the disease he should know. Neither queen nor brood is affected, because their food is given already digested, therefore it does not contain the germs of microsporidiosis which undigested food often does.

London, Eng.

LIQUEFYING GRANULATED HONEY

The Tops of the Cans Should Not be Submerged in Water

BY T. P. ROBINSON

The writer's attention was called to Mr. Louis H. Scholl's article on heating granulated honey to reliquify it, in the Nov. 15th issue; and having had much experience in this work I have decided to offer a few remarks.

Mr. Scholl is right in his statement that honey should be heated slowly for best results, but painfully wrong when he tells us to submerge the cans in hot water and cover the top of the vat entirely. One great danger of inundation is that water is liable to creep in through the caps of the cans. The other is that of overheating the honey. I have heated something like 20,000 pounds of honey since August, and I think the matter of reliquifying honey a part of bee-keeping, just the same as any other part of the work, which is an absolute requisite in this part of the State with our cotton and horse-mint honey.

My cauldrons or vats hold 12 five-gallon cans each, and I usually heat about 2000 pounds at one time. The cans are made

just as deep as the five-gallon cans are high plus one inch to accommodate wooden strips placed in the bottom of the vat on which to place the cans to prevent burning the honey. The water in the vat comes to a point one inch from the top. The vat is placed on brick six inches high, so as to have the fire flush against the bottom of the vat. When heating begins, the water is used as a thermometer. The water in the vat around the honey is heated to the temperature of hot dishwater, and held at this temperature. Presently the heated honey will begin to flow to the top of the can, allowing the granulated part to sink to the bottom of the can. This process of the heated honey rising and the solid parts going down continues until the whole mass is liquid. I heat the honey until it reaches about two-thirds the boiling-point. The cans are kept sealed tight all the while to retain the aroma of the honey. The stirring referred to by Mr. Scholl is unnecessary.

I reliquify and redeem chunk comb honey by thus heating, and have as a result fine extracted honey with a nice cake of wax. I have used this method of reliquifying honey for 13 years, and it has been very satisfactory to myself and customers. I have yet to receive my first complaint.

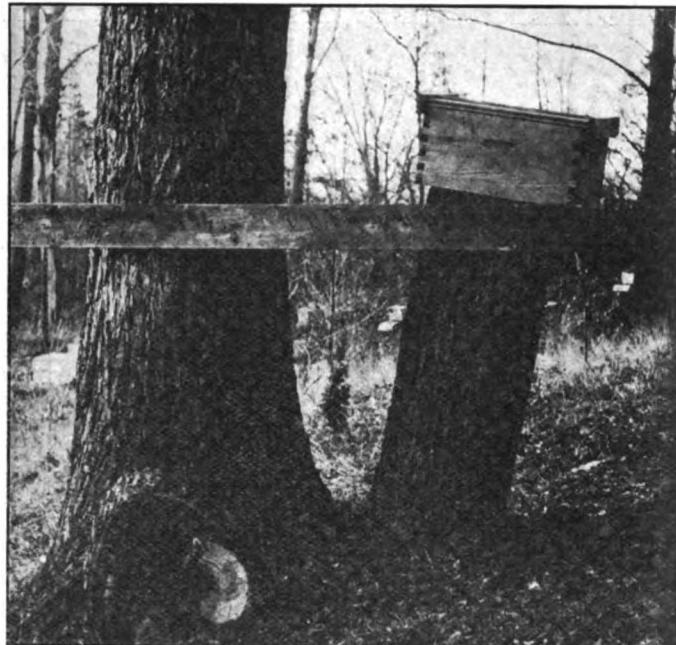
Bartlett, Texas.

A TREE HIVE

BY C. B. MORRIS

B. J. Mayo, of Metuchen, N. J., a bee-keeper of forty colonies, has an interesting specimen of bees in a tree-trunk that was obtained in November, 1913, at a cost of considerable trouble and labor.

The colony was discovered in the woods, about twenty-five feet from the ground, in a dead tree. An investigation proved the worth of both bees and honey, and on the following night the first steps toward gathering were made. The tree-trunk was sawed at



B. J. Mayo's tree hive, weighing, with the bees, in the neighborhood of 500 pounds.

the point where the bottom of the combs was correctly judged to be, and allowed to fall over and down into a smaller one. The smaller one was cut, and allowed to fall into a still smaller one, and so on until four trees in all had been cut down. This permitted the lowering of the hive by degrees, and thus saved the otherwise 25-foot drop that would have resulted in an entire loss of bees.

As the bees were of the Italian breed, and not the common black kind that are so often found in the woods, it was an object to save them as well as to obtain their honey.

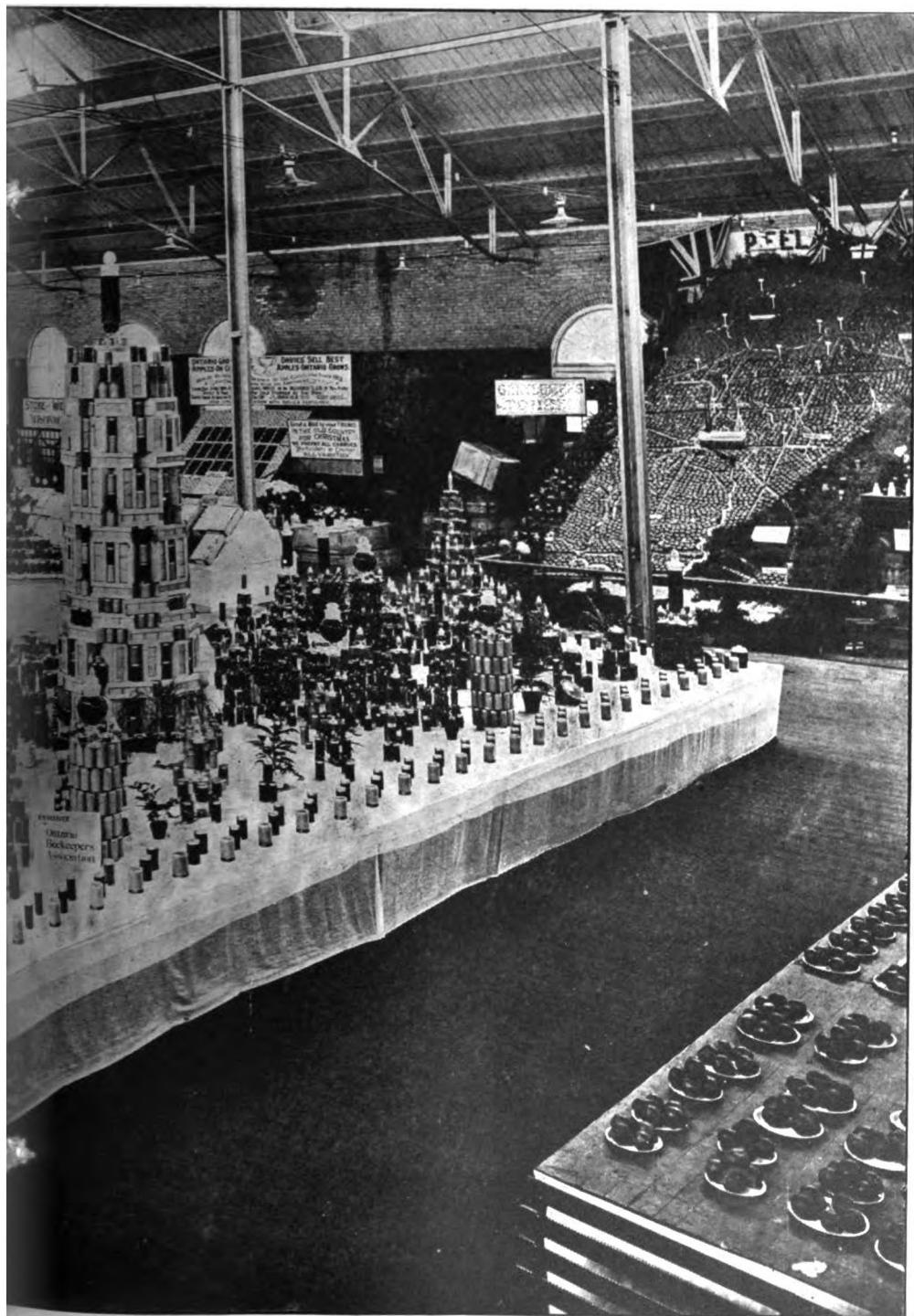
The top half of the tree was landed safely, and the extent of the colony judged to be 51 inches upward from the bottom cut. This estimate proved to be wrong, as the saw passed through the combs, leaving about a quarter of them still in the top. The smaller portion was then cut off, and, with the larger one, placed in a wagon and taken to Mr. Mayo's apiary.

The picture shows how the larger portion was made fast to a tree, the smaller one lying on its side empty.

It is the desire of Mr. Mayo to have the bees in the larger portion work their way up and into the hive on top, filled with the remains of extracted honey-combs, and then, under favorable conditions, remove the colony to a place where other hives of this pattern are located. Already this procedure



Ontario honey exhibit in Horticultural Building of the



Exposition in November, 1913. See next page.



A portion of the apiary of B. J. Mayo, Metuchen, N. J. Mr. Mayo started three years ago with only five colonies. The cover picture for this issue shows Mr. Mayo and his son standing near the edge of their apiary.

has been successfully worked on the smaller portion, and the honey taken from it.

The hive as it now stands measures 51 inches in height, 58 in circumference, and is estimated to weigh 500 pounds.

Metuchen, N. J.

THE ONTARIO HONEY EXHIBIT AT THE HORTICULTURAL EXHIBITION, TORONTO

BY E. R. ROOT

Last year, in November, there was held in Toronto the usual horticultural exhibition and poultry and fat-stock show. But the thing that would interest the beekeeper particularly was a magnificent honey exhibit in the very center of the horticultural building, mounted on a large table. This exhibit was prepared under the direction of Mr. H. G. Sibbald, of Claude, Ontario, a director in the Ontario Beekeepers' Association, and one of the prominent and most successful beekeepers in the Province. When I say "successful" I mean that he is one of the largest producers of a fine table extracted honey on the continent. There are but very few men whose crops are larger, and certainly none who produce a finer honey. During the winter he changes his residence

to Toronto, where he looks after the selling of his crops.

When plans were made to have this horticultural exhibition, the beekeepers of the Province saw to it that their allied industry was properly represented. As we know that bees make more and better fruit possible, what could be more appropriate than that honey should be shown at this horticultural exhibition?

Perhaps the most striking thing in this whole exhibition hall, unless it be the Peel County exhibit of fruit opposite, was the Ontario beekeepers' honey exhibit as shown in the illustration preceding, occupying as it does the very center of the vast building.

Mr. Sibbald, though he had had no previous experience, or at least a very limited one, was prevailed on to take charge of and erect this exhibit. That he has the artistic sense so necessary in a work of this kind, I think will be agreed to by all who look at this picture. Instead of following the conventional lines of a blocky or massive display it will be noticed that he adopted a variety of schemes to set off the honey. The big tower in the very center of the exhibit, made up of comb honey and bottles of extracted, not too crowded, stands out in strong relief. The pyramids and smaller

towers are scattered here and there with small groups of honey in various parts. The effect with the open spaces is very pleasing.*

I have before spoken of the beautiful color and quality of Ontario clover honey. It comes as near being water-white as any honey I have ever seen, with one exception, and that is the guajilla of Texas. As every one knows, honey in a picture will take black; but if you can imagine these black bottles containing a very pale crystalline honey you can get something of an idea of the beauty of this exhibit. Of course, there were dark honeys, such as buckwheat, but the great mass of the display was made up of Ontario white clover.

By the way, our correspondent, Mr. Byer, on page 6 of our last issue, another large producer of fine honey, thinks I shall be taken to task for intimating that the whiteness of Ontario clover is due to thistle. We have no thistle in our clover honey on this side of the line; and in view of the fact that the Ontario product has something else in its flavor that is very pleasant, and lighter in color than our clover, I naturally concluded that thistle explained the difference. Nor did several of the Ontario beekeepers with whom I talked demur at the suggestion. Mr. O. L. Hershiser, one of the best judges of honey in the United States, and who was a judge of some honey at the Ontario convention, gave it as his opinion that there was a little thistle in much of the Ontario clover honey.

In our last issue, also page 6, our correspondent, Mr. Byer, could not refrain from commenting on the fact that a certain editor had been held up by a "cop" for stealing honey. Now that "the cat is out of the bag" I might as well "put on the shoe" and explain. I stood, very innocently, in front of this honey exhibit, as shown in the picture, while a good beekeeper kept me in close conversation. Whether there was any design on his part, I know not. I remember somebody bumped up against me, and a movement in or toward my overcoat pocket. As the occasion of the collision was my friend Charles E. Hopper, I did not feel to see what I missed—or in this case acquired. I merely supposed it was an accident, and let it go at that. Soon afterward a Canadian policeman, with an artificial sternness on his face, took hold of my arm and said, "So you are the chap who has been stealing some of this honey? I have caught you with the goods on you." Remembering that bump against my pocket I reached down and

found a bottle of honey. I immediately turned about and saw a twinkle in the eyes of Mr. Sibbald, Mr. Hopper, and, I think, of Mr. Byer. I turned to Mr. Policeman and said, "Those fell-w^ms over there have been stuffing my pockets."

"That is a very good story for *you* to tell," said he; "but you had better come along with me." By that time the assumed sternness on his face had broken into a smile, and a suppressed giggle was heard in the direction of my friends.

It seems that some of these bottles of honey, so easy of access, had been stolen, and the police had been instructed to keep a watch, and the first man he caught with the goods on him was the editor of *GLEANINGS!* Well, if I do not get into any worse scrape than this I shall count myself fortunate.

FIELD MEETING OF THE NEW JERSEY BEEKEEPERS' ASSOCIATION

BY E. G. CARR

One of the best-attended meetings of the New Jersey Beekeepers' Association was held at the apiary of Geo. Grover, on June 25, there being 63 present.

The first subject under discussion was the improved robber cloth by Dr. Cheney, of Hoboken. This, besides being ingeniously gotten up, contains valuable features. This was fully described and illustrated, p. 270, April 15. Another device shown by Dr. Cheney was a stand on which to place removed supers, which is so constructed as to make it almost impossible to mash bees on the under side of the super, and, besides, is very simple in construction.

The next was a discussion by W. W. Case, of the tube escape and its uses. So far as can be learned, Mr. Case is the originator of this device; and, while primarily designed for the treatment of foul-broody colonies, it is also ideal for transferring from any sort of hive or box which can be made bee-tight.

This was also fully described and illustrated, page 406 of the June 15th issue.

After lunch, "Short cuts in finding queens" was discussed by I. J. Stringham, of New York; Dr. Cheney, of Hoboken, and Pres. Root, of Red Bank. Mr. Stringham's plan is particularly adapted to finding queens when robbers are bad, and in black or hybrid stock. The operation is as follows:

The hive which is to be manipulated has placed near it a bottom-board; on this a queen-excluder and two empty hive-bodies over it. The hive is gently smoked at the

* The great trouble with many honey exhibits is that the display is too crowded. The open spaces, as in the exhibit above, help to set off the groups of honey.



One of C. H. Root's apiaries showing his winter cases.

entrance, lifted from its bottom, and placed on the two bodies. It is now opened, and two outside frames removed; and after making sure the queen is not on them they are covered from robbers. The remaining frames in the hive are spread and smoked freely. The bees, together with the queen, will cluster under the bottom-bars.

Now raise the hive about an inch, and set it down sharply, thus dislodging the cluster of bees. Replace the combs on their stand, return the two removed combs, and, after smoking the bees from the upper empty body, remove it and place the lower body with the queen-excluder over the brood-nest. Now gently smoke the bees down through the queen-excluder, and the queen will be found trying to pass through the zinc.

Dr. Cheney makes use of a queen-excluder on which is nailed a four-inch board flush with the edge. The hive under manipulation is removed from its bottom-board, and an empty hive-body put in its place. On this is put the queen-excluder with the board attached so it leaves about 3 inches of the lower hive open at the top. The hive of combs is now placed square on the queen-excluder, and the combs removed one by one; and after making sure the queen is not on them they are placed in the lower body through the uncovered space, each one being shoved along to make room for the next.

Pres. Root said all who enjoyed this kind of sport were welcome to it; but this way he considered superior. It is, to keep nothing but quiet gentle Italians; and he never had

any trouble locating the queen by just looking for her.

The last subject to be discussed was the winter case, by Pres. Root. This case is of Mr. Root's devising, and is double-walled with two inches of packing, and telescopes over the regular dovetailed hive-body, the handhole cleats being left off to insure a close fit.

The brood-nest is covered with the thin super cover. In connection with this winter case is used a double-packed bottom-board and packed telescope cover. Mr. Root claims a yearly profit from the use of this case of \$2.00 per colony in saving in winter stores and extra honey gathered early before the cases are removed.

As an indication of the interest in this meeting, one couple started at three o'clock A. M., and rode bicycles 13 miles to catch a train. Several members were enrolled.

NUMBERS AND NAMES OF THOSE IN SUMMER MEETING.

1. G. V. Barnes, Pemberton, N. J.
2. Geo. Grover, Trenton, N. J.
3. B. J. Mayo, Metuchen, N. J.
4. P. G. Snyder, Swarthmore, Pa.
5. C. H. Root, Red Bank, N. J.
6. Mrs. W. F. Dilts, Flemington, N. J.
7. W. W. Case, Frenchtown, N. J.
8. Mrs. E. G. Carr, New Egypt, N. J.
9. Edna Carr, New Egypt, N. J.
10. J. A. Hallinger, Titusville, N. J.
11. C. G. Lippincott, Little Silver, N. J.
12. S. Powers, Wading River, N. J.
13. F. G. Fox, Pipersville, Pa.
14. Henry Bassett, Salem, N. J.
15. Julius Hittell, Plainfield, N. J.
16. R. Grabowski, Trenton, N. J.
17. G. Franassen, Lyons Farms, N. J.
18. Mordecai S. Haines, Mt. Holly, N. J.
19. W. I. Green, Shrewsbury, N. J.
20. Hudson B. Haines, Mt. Holly, N. J.
21. W. B. Bennett, Bloomfield, N. J.



Field meeting of the New Jersey Beekeepers held at Trenton, N. J., last summer.

22. J. L. DuBree, Jenkintown, Pa.
23. Dr. C. D. Cheney, Hoboken, N. J.
24. F. C. Templeton, Plainfield, N. J.
25. Dr. W. J. Wolfert, Red Bank, N. J.
26. Ed Krekl, Northvale, N. J.
27. Jno. D. Antrim, Burlington, N. J.
28. E. J. Dienst, Newark, N. J.
29. Wm. Clayhunce, Titusville, N. J.
30. Henry Mull, Newark, N. J.
31. Richard D. Barclay, Philadelphia, Pa.
32. W. E. Housel, Hampton, N. J.
33. Joe W. Tonkin, Sicklerville, N. J.
34. Joe J. Wolcott, Eatontown, N. J.
35. Dr. H. D. Powelson, Bound Brook, N. J.
36. I. J. Stringham, Glen Cove, L. I.
37. Harold Hornor, Mt. Holly, N. J.
38. J. H. Wilson, Ringoes, N. J.
39. C. S. Sharp, Newark, N. J.
40. E. C. Stevenson, Burlington, N. J.
41. W. A. Salter, Philadelphia, Pa.
42. Jas. J. Keller, Glendale, L. I.
43. Chas. Schilke, Matawan, N. J.
44. Mrs. S. Powers, Wading River, N. J.
45. Mrs. E. C. Stevenson, Burlington, N. J.
46. Mrs. H. D. Powelson, Bound Brook, N. J.
47. Miss Grace O'Connell, New York.
48. Mrs. Julius Hittel, Plainfield, N. J.
49. Mrs. B. J. Mayo, Metuchen, N. J.
50. Mrs. Henry Mull, Newark, N. J.
51. Mrs. E. E. Alexander, Red Bank, N. J.
52. Wm. J. Corlett, Clinton, N. J.
53. Sim Bardsley, Edge Moor, Del.
54. E. G. Carr, New Egypt, N. J.

BEEKEEPING IN THE TROPICS

An Open Letter to F. R. Beuhne

BY CARLOS M. CARMONA

Although I have read GLEANINGS for many years I have not cared to enter into discussions about the merits or demerits of plans advocated relating to certain beekeeping questions carried on in its columns, on account of my ignorance of the language, because of my meager knowledge of beekeeping, and also because of so much con-

tradictory advice given by the different contributors. Furthermore, most of the questions discussed refer to questions not affecting tropical beekeeping; and, after all, I have to adapt American conditions and knowledge of beekeeping the best I can to local tropical conditions for want of any source of knowledge of tropical beekeeping to which I may apply.

But lately I have found GLEANINGS improving so much, and publishing contributions from different parts of the world touching matters that also affect tropical beekeeping, that I have been much interested, and have been benefited greatly on certain points which I have heretofore been unable to understand or explain. Having a new interest in the matter, therefore, I beg to ask a few questions and report my experiences to confirm certain questions dealt with recently.

To begin with, I beg to confirm every word, p. 537, Aug. 1, as my own experience, beginning, "Years ago it used to be much heavier," to the end of the article, with the exception "I merely abandoned the plan as unreliable," for it is only lately I abandoned it on account of recent contributions in GLEANINGS, and presto! the loss of 50 per cent of my queens stopped, to my surprise and delight. Formerly I had noticed that, after a swarm in a normal colony issued, the remaining virgin queen always returned fertilized, and began to lay in due course without any meddling, notwithstanding the colonies were placed quite close together and under a shed, and while the nuclei, placed

as far apart as possible, with the entrances contracted, with different contrivances to help the queen find the location, were queenless most of the time. I could not explain the reason, but now I can. The last controversy about the matter enlightened me fully, and the experience confirms it.

The answer to the query on p. 536 is, "Normal conditions," as in the case of supersEDURE.

Mr. Beuhne says, p. 535, "Early in the spring I exchange queens between colonies having a three-year-old queen and nuclei with previous season's queens." Would he or you please explain the *modus operandi*? It may be quite plain to experts, but I should be thankful for details. By the by, this three-year-old-queen business does not confirm last paragraph on page 518.

If "hives are tiered up three and four stories high without a queen-excluder," how is the extracting managed? No brood in the top stories? How is one sure where the queen is? How are the supers taken from the hives—by using Porter escapes or brushing the bees from the combs? How about the lower stories having combs full of honey at the sides? Is there any entire absence of drone comb in the upper stories?

Mr. Beuhne says, p. 535, "These are, of course, the best colonies, and the general average for the 100 colonies in this apiary." How is it that out of eight colonies in this apiary not less than five colonies are numbered over the one hundred—viz., 260, 248, 205, 127, and 256?

In the spring Mr. Beuhne expects the queen to lay in at least two stories; therefore, before that, she is confined to one story. As the colonies are tiered later three and four stories high, where and how does he keep so many empty combs? I have noticed the instructions given on pp. 547 and 486. This is a perplexing question with me, and one of long standing. Although I can not practice the freezing part, for obvious reasons, I thought that combs kept from the moths would last indefinitely, being made of wax. Two galvanized tanks of 250 and 150 gallons each were properly packed to the top with the combs, carbon bisulphide applied at intervals, and the tanks properly covered. But the combs crumbled, disintegrated, and turned to earth in the end. Only a heap of dust at the bottom of the tanks and the stacks of wired frames was found. The tanks were in the extracting-room.

Trinidad, B. W. I.

[Mr. Beuhne's reply follows.—Ed.]

EXCHANGING QUEENS BETWEEN DIFFERENT COLONIES

BY F. R. BEUHNE

In reply to Mr. Carmona, above, as to the method of exchanging queens as mentioned in my article, Aug. 1, p. 535, there is really very little to explain. A comb of brood with the three-year-old queen on it is taken from the colony and inserted in the vacancy made in the nucleus by the removal of a similar comb with the young laying queen. The latter is then in turn put into the vacant space between the brood-combs of the colony. A small box is used to hold one of the combs and queen while the other one is put into its place. This exchanging of queens would, perhaps, be somewhat risky if the bees in an apiary are demoralized by robbing. I have not, however, had a single failure. Of course, queens can be exchanged by the introducing-cage method; and when the nuclei contain frames of different size from the colonies it is the only possible way. I much prefer the other method, as there is then no need of going back to see whether the queen has been released and to remove the cage.

QUEEN-EXCLUDERS; TIERING UP.

In answer to the question, "If hives are tiered up three and four stories high without a queen-excluder, how is the extracting managed?" I would say that the theory is to let the queen have the free range of the whole hive before the main honey-flow. At the first extracting, the queen and the most suitable brood-comb are put into the bottom body with an excluder between it and the upper stories. An exit is provided for drones to escape from the upper stories to avoid getting the excluder clogged with dead drones. I admit this entails some extra work and attention to details, but it is well paid for by results. Inserting the queen-excluder when extracting for the first time is the best method for "an ordinary honey-flow." If the flow is heavy, such as mentioned on pages 534, 535, Aug. 1, the excluder is not needed at all. The intake of honey is so great that the queen is forced down to the lower combs. No brood in top stories? Yes, of course there is. Brood from top stories is exchanged for combs of honey in the lower chamber. Porter escapes are not used by any one here so far as I know. In two of my apiaries the very small ants would be in before the bees get out of the combs; and why go to a hive twice—once to put the escape in, and then to take the honey away when you can take the honey away at once in very little more time? One frame is taken out and temporarily

placed against the hive; the bees of the succeeding ones and the first as well are shaken *into* the hive (not in front of it). Where are the bees which were shaken off one or two bodies of combs while the latter are being extracted? In my own practice they are already at work on the empty combs, which I left there when removing full ones. If I have no spare empty combs when commencing extracting I replace the first full combs removed with frames of full sheets of wired foundation. The extracted combs as they come from the honey-house are exchanged for full ones, and so on to the end of the day's work, when the remaining bodies of extracted combs are placed on top of the hives to be extracted next day. Thus it will be seen that taking away the honey and returning extracted combs is one operation.

Is there an entire absence of drone comb in the upper stories? No, not entire; but as nearly so as the use of full sheets of foundation in all new frames can make it. To make the best use of a heavy honey-flow, such as we get from some of our eucalypts, one must have plenty of supering. It is all a matter of preparation during the short winter, and the investment of a little extra capital. When the flow is on, the bees will draw out one set of frames of foundation after another with astonishing rapidity.

There are conditions of weather or other circumstances which will sometimes prevent extracting while yet the bees are storing steadily. Well, put on more supers, and you will increase your yield considerably. Bees will not fill up a cell to the rim with thin honey, because it would not evaporate properly; and when the cells of one set of combs are half full, and no other empty ones available, the bees are not doing what they might do.

How is it that, out of eight colonies in an apiary of 100 stocks, some are numbered above one hundred (page 535, Aug. 1)? The answer to this question is: All my colonies are numbered. The number individualizes the colony the same as a name does a horse or a cow, and therefore the number follows that colony wherever it goes. The colonies in the apiary referred to were selected from my home apiary, those in the best condition to stand the transportation being picked out. They retained their original numbers, otherwise I should lose all record of their past performances, pedigree of queens, etc.

In reply to the question as to keeping surplus combs during winter. I can add nothing to what appears on page 547, Aug. 1, and in the A B C and X Y Z book, except

that I have never fumigated combs in any way, and never have any trouble with wax-worms, although they are plentiful enough in this district. I put the combs away in the supers, covered moth tight in a bee and moth proof honey-house; and as the combs of Italian bees are free from moth eggs while on the hive, the important point is not to let the moths get access to them by leaving them unprotected after removal from hive and before putting away moth-tight. It is little use putting combs away secure from moths when the moths are allowed to lay eggs in them first. I am of opinion that the combs in the galvanized-iron tanks were destroyed by the action of carbon bisulphide applied to excess.

Tooborac, Victoria, Australia.

WINTERING BEES ON LOAF SUGAR

BY E. G. CARR

In replying to the question as to when to transfer bees, somebody has said, "Whenever you wish." While this can not be taken literally as meaning at any time of the year, still if one has the material and skill, transferring can be successfully done at seemingly very unfavorable times.

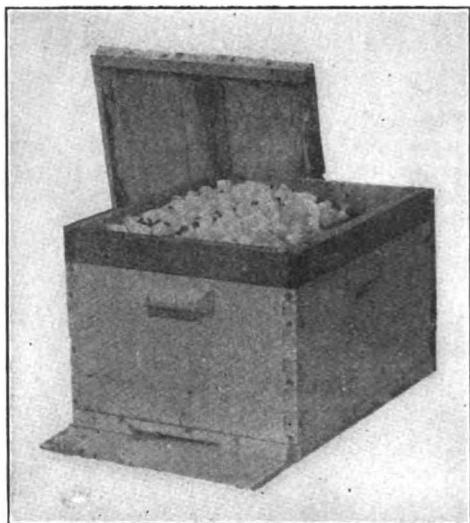
A neighbor wishing to "take up" a box hive asked how best to kill the bees. Wishing to experiment with loaf sugar alone as a substitute for honey for wintering, I offered to take the honey from the box and leave it with him and take the bees.

On Dec. 16, 1912, the weather being fair and the temperature near 50, the old box was turned bottom side up, well smoked, and the side pried off. The combs were removed one by one, the bees brushed into a box, taken home, and dumped into a ten-frame hive containing wet extracting-combs. These combs were extracted late, and contained perhaps a pound of honey in all. A two-inch rim was put on top of the hive. The following day an unsuccessful search was made for the queen:

On Dec. 21 another search was made for the queen; and two patches of brood, each about six inches in diameter, were found. Knowing the queen to be safe, ten pounds of loaf sugar was put on top the frames, and an ordinary flat cover placed on the hive. No packing whatever was used.

An examination on Feb. 1 showed the cluster of bees partly above the frames and through the loaf sugar, this being also the condition on Feb. 8.

March 20 the sugar was removed, weighed, and found to be 6 lbs., 4 lbs. having been taken down in three months. At this time



Hive fitted with tray for feeding loaf sugar in cold weather.

two frames contained brood, the total being almost equal to 1 1-3 framefuls. There was less than half a pound of stores in the combs, a few cells being sealed. A very nice supply of new pollen had been gathered, the bees working on maples and elms at intervals since Feb. 21.

On March 31 the sugar was again weighed, showing 5 1/4 lbs. still on top of the frames, and not over half a pound of stores in the combs. There was no noticeable gain in brood after March 20, and very few days when bees could do much work, owing to high cool winds and rain.

About the 10th of May one frame of honey was given this colony, although there was a small amount of loaf sugar left. This colony was worked for comb honey, and about 40 sections from clover taken. It was quite a small cluster of bees when originally transferred.

The experiment shows that bees in this climate can be wintered on loaf sugar alone.

It has been suggested that this knowledge can be made of use, not only in supplying a deficiency of winter stores, but also in treating for *European* foul brood after the breeding season when there is not on hand a supply of field combs on which to shake the bees. The idea was to extract the honey from the infected combs, return them to the hive, and place loaf sugar above the frames. The theory is that the bees will thoroughly clean the cells of honey, preferring it to the loaf sugar, and there will be no infected honey left to start the disease when breeding commences.

It is well to bear in mind that this is not given as a tested cure for European foul brood, but only a plausible theory which may or may not be of value.

New Egypt, N. J.

THE 24TH ANNUAL CONVENTION OF THE CALIFORNIA STATE BEEKEEPERS' CONVENTION

BY P. C. CHADWICK

The convention was held at the Y. M. C. A. building in Los Angeles, December 9-11, as per schedule. Nearly the entire time was taken up with business, the usual papers and lectures being dispensed with that all matters of business might have careful attention. Harmony prevailed through the session, though at one time danger ahead was signaled when the failure of our foul-brood law was being discussed. Trouble was averted, however, by a prominent member pointing out that there was to be nothing gained by wrangling over the question.

The meeting was, indeed, a representative assembly of active beekeepers of the State. Familiar faces from the north and the south were to be seen among the workers. There were also beemen present from Idaho, Utah, Nevada, Colorado, and Ohio. Most prominent of these were Mr. G. C. Matthews, of Idaho; Harry Crawford, of Colorado, and A. L. Boyden, of Ohio. Some new members whose faces have not before been seen in the convention were welcomed, for they must in time take the place of the older ones, just as, in the last twenty-four years, new ones have come and old ones have gone, there being always an enthusiastic bunch, nevertheless, to carry on the work. One is reminded more of a fraternal or religious gathering than that of beekeepers. Hope abounded in spite of two seasons of failure, and there were smiles and jollying words for every one. Indeed, the phrase might well be coined, "As hopeful as a beekeeper."

There was no regular session on the 9th, the afternoon being devoted to pre-convention committee work.

At 10:30 A. M. of the 10th, Pres. Farree called the regular session to order. This session was occupied by the reading of the minutes of the previous meeting, the treasurer's report, and the appointment of new committees. The afternoon session was short as a body, nearly the entire time being devoted to committee work, all members willing to work being placed on a committee. The banquet announced for 6:30 P. M. was deferred until noon of the 11th.

On Dec. 11 the convention was called to

order by Pres. Farree. The exhibit committee reported progress, but stated they were in need of funds to carry on the work, and an appeal was made to every beekeeper of the State to aid by sending in immediate donations or give a pledge for a certain amount at a later date.

The corporation committee explained why the Consolidated Honey-producers of California had been incorporated. If I am correct it runs like this: There was a clause in the proposed foul-brood law in which the names of the president and the secretary of the State Association were named as members of the aparian commission. When the bill reached the legislature it was found that there was no such organization incorporated, and the secretary was so notified. There was a hurry call to organize legally in order that a stumblingblock might be avoided. It was found that it would be impossible to organize under the name of the California State Beekeepers' Association, due to the fact that there was on file in the office of Secretary of State a name very similar, and he would not allow it. It was then decided to adopt the name of Consolidated Honey-producers of California, which was done, the new organization being the legal head of the present association and belonging to it. As nearly as I could glean from the discussion, here was a worse stumblingblock than the one sought to be avoided, for the reason that the new organization was organized, not as a mutual association, but as a profit-sharing company. J. Edgar Ross, of Imperial Co., I think, expressed the situation when he said the appointment of an officer of a business corporation on a commission to regulate its own business could not be sanctioned any more than to appoint an officer of the Southern Pacific R. R. as State Railroad Commissioner. This leaves me with the impression that the governor was justified in vetoing our bill, and that there should be no blame placed on the shoulders of Prof. Cook, as has been done by some. If the new corporation had been organized as a mutual concern instead of a profit-sharing one I believe the bill would have been signed.

The noonday banquet was the most enjoyable time of the session, there being talks on topics of the apiary; toasts, roasts, and jokes, the burden of which fell, as usual, on our good-natured President, Mr. Farree.

At the afternoon session Pres. Farree and Sec. Shaffner were unanimously elected to their respective offices, Messrs. Bixby and Allen taking the places of Emerson and Mendleson on the executive board. A meeting of the Consolidated Honey-producers of California was called to meet the third Tues-

day in January in the Chamber of Commerce to complete arrangements for handling the honey crop and furnishing supplies for the Association.

THE NEW YORK STATE BEEKEEPERS' CONVENTION HELD AT ROCHESTER, DEC. 2, 3

BY E. R. ROOT

As stated in our issue for Dec. 15, 1913, page 873, this was the largest convention of beekeepers we have had the pleasure of attending this winter in the United States. The only larger meeting was in Toronto, Ontario. President Geo. B. Howe makes a good presiding officer. His enthusiasm is such that it will wake up a whole convention. Ordinary discussions, in which possibly but very few would take any interest, he will enliven with his own personality; and before he gets through he will have everybody wanting to talk. He is also a practical honey-producer as well as a queen-breeder.

With the possible exception of the Colorado Honey-producers' Association, the beekeepers of New York are better organized than those of any other State. This is largely due to the efforts of Mr. W. F. Marks, who for years has been president of the organization, and the man who has taken so much interest in fostering the association idea throughout the State.

On account of our space being so limited it will be impossible for us to give any thing more than a brief resumé of what was said at this meeting. Again, there will be some gaps in our report, not because the discussion was not interesting, but because we were interrupted at times in taking notes.

At the time we entered the convention room there was some talk as to whether the proceedings should be taken in shorthand. It was finally voted down on account of the expense. If there were any proceedings which were worth publishing in full they were those that took place at this meeting.

After some preliminary discussion in regard to membership fees in the local societies affiliated with the State organization, the general program was taken up.

The president, in his opening address, spoke of the importance of advertising our product. He called attention to the honey writing-pads that are sent out by members of the association to the consuming public. These pads,* calling attention to honey as a food, will be kept prominently before the consumer because of their utility. He referred to the importance of having crop

* These pads were gotten up by W. F. Marks. As they are very unique we will have an illustration of one of them later.

reports from various sections of the State and country, in order that the honey-producers might know how prices would probably rule. Under present conditions the small producers set the price. Some plan should be formulated by which these men can be brought into line. Again, we must have organization. This should be so thorough that there will be a spirit of co-operation and a general knowledge of conditions of the season. So far the New York State Association has kept aloof from the National; but the time has now possibly come when the State organization should affiliate with it. The old prejudices of the past should be allowed to die out. If mistakes have been made they should be forgotten. He would recommend that measures be taken to get in touch with the National.

During the afternoon the question "What can be done to prevent the variations in the price of honey?" was introduced by Mr. S. D. House, of Camillus, N. Y. Any one who attended any one of the meetings of the beekeepers in New York could not help noting that Mr. House is a live wire. He is another one whose enthusiasm is contagious. Mr. House started a lively discussion. It was not so much what he said as what he drew out of others until everybody wanted to talk. It is not the little beekeeper only, said Mr. House, who is making the trouble with the demoralization of prices. Some of the large producers, who are not in close touch with the organization or with each other, will establish a price of their own that will knock the bottom out of the market. He believes we should have a committee of five to get out crop reports. Later this question was thoroughly thrashed out, in which it was shown that some members were selling too low. It was decided that prices could not be fixed at that time, but that some scheme should be adopted to insure a uniform scale of prices. This subject was thrashed over until it seemed there would be no solution when Mr. Marks moved that the whole matter be referred to the committee on resolutions. This was agreed to.

This was followed by an address by Mr. H. L. Case, of Canandaigua, N. Y., entitled, "Is the capping-melter a necessity? If so, what style is best?" Mr. Case somewhat startled his hearers by saying, "I never saw a capping-melter in my life. I am a producer of comb honey, and therefore have no use for such a contrivance." Then he paid his respects to the secretary for assigning to him a subject that he knew nothing about; but now that he was on the program he was going to say a few things relative to what he had found useful. One of them was a

little tin pocket that he attaches to the side of the hive to hold the hive-record. These records are made of pieces of common section boxes. The pocket is so constructed that it sheds water and protects the record from the weather. He had also a scheme for wiring frames that would do away with drone comb.

At the close of his brief address he was followed by Mr. Baldrich, who went on to describe that the capping-melter that he uses is not a device for taking care of the cappings as fast as they fall from the knife, but to melt them after they are drained. The device consists of a double water-jacketed boiler that may be used on a common stove. Mr. Irving Kenyon, secretary, uses something similar to this, and he has found it a great convenience. Mr. House described a machine he had seen at the A. I. Root Co.'s place, that melts the cappings as fast as they fall from the knife.

We next listened to an address from a government man, Mr. Geo. S. Demuth, of the Bureau of Entomology, Washington, D. C., on the subject entitled "Some Critical Periods in the Season's Management." There are several things that might happen to a colony of bees, and some of these are under the control of the beekeeper. The source of nectar and weather conditions, of course, are entirely beyond the control of the bee-man; but there are other conditions which the beekeeper may modify; and one of these is the condition of the colony. Sometimes we have all the conditions favorable, and then we can secure a good crop. Then come times when bees need to be fed. Scarcity of stores may mean a loss of brood, of bees, and the honey crop. Then there is the problem of keeping the forces together instead of having them dissipated by unnecessary swarming. This is more difficult to accomplish in the production of comb honey than extracted. The question of when to put on another super, and whether to place the same under or above the one already on the hive, is important. He believed that a great many beekeepers do not give room fast enough. Some err in giving it too fast. He would impress the very great importance of contentment in the family.

At the close of this address Mr. S. D. House spoke of this idea of "contentment," saying that, in order to get the maximum work out of a colony, there must be contentment and not uneasiness—a condition where all hands seem to be busy with the single object in view of gathering nectar from the fields, and making a place to store it. He also indorsed what Mr. Demuth said on the subject of tiering up—that some do not give room fast enough. The discussion naturally

turned to the conditions that bring about swarming, and how to prevent or forestall the same. Mr. Demuth in the discussion that followed stated that contentment can be brought about sometimes by giving more ventilation, sometimes more room, or both. The Aspinwall hive, for example, provides both of these conditions. Mr. House said he believed that the Aspinwall hive would effectually stop swarming, but he thought it too expensive, and that a sectional hive, on account of its easy manipulation, was cheaper, and better for the purpose. Dr. Dines agreed. In the course of the discussion that followed, some thought that an overplus of drones tends to induce swarming. Mr. Charles Stewart held that it was not an overplus of drones but too many nurse bees. To this Mr. House and Mr. Demuth agreed. Speaking of the Aspinwall hive, Mr. Irving Kenyon reported that he had tried it out very thoroughly and had found it a success, both in the matter of preventing swarms and in the production of comb honey, but considered it too expensive for the average beekeeper to adopt.

IS IT DESIRABLE TO KEEP BEES IN THE SHADE?

This was discussed by W. D. Wright, of Altamont, N. Y., who is not only an extensive beekeeper but also one of the State foul-brood inspectors. This question, he said, may be answered by yes or no. The apiarist needs shade as a matter of comfort to himself; and incidentally it may be useful to the bees. He had long advocated and practiced using an orchard with medium-sized trees as a desirable place to have an apiary. It is not always possible to have such an orchard, but he was sure that too much shade is too much of a good thing, and for that reason he did not advocate large trees. Shade-boards may be satisfactory, but he considered them objectionable on account of their inconvenience in handling, and because they detract from the appearance of the hive. Years ago he tried out shade-boards, but discarded them. In conclusion: 1. He would keep all hives painted white; 2. Provide a good circulation of air around the hive; 3. Give large entrances; 4. Give all strong colonies plenty of room.

Mr. H. L. Case said he had used shade-boards both for shade and at other times of the year, when the bees do not need them. At such times he puts them in front of the hives to kill the grass.

Mr. Chas. Stewart had a part of his hives in the shade and a part out in the open. He could see no difference in honey production. He has observed that when the hives are not shaded the bees go out earlier in the morning, while those in shaded hives would work better during the heat of the day. President

Howe said that black bees and Caucasians need more shade. Mr. W. F. Marks arose to ask "Who has black bees? Does not Mr. Howe mean brown bees?" This brought out not a little discussion showing that there were two strains of black bees; viz., the little black bees and the larger brown bees.

Mr. C. B. Howard next discussed the question of whether we should retail extracted honey in liquid or granulated form. He had been selling granulated honey like lard and butter. Such a plan eliminates the cost of handling, and at the same time educates the trade to honey in that form. The discussion naturally drifted toward selling liquid honey in various forms. Irving Kenyon sells his in pails; Louis Wahl in milk-bottles, and he showed some very pretty honey of his production. He allows three cents for each pint bottle, and five cents for a quart bottle when returned.

At the evening session there was a lively discussion of the question-box—breeding queen-bees and breeding bees in general; best sections for the production of honey; best Italians to resist bee disease, and the color of Italians.

President Howe gave it as his opinion that the imported Italian bee may show only two yellow bands. He had been informed that there are very dark Italians in Italy—some of them even black.

On the question of whether comb and extracted honey could be produced profitably in the same hive, there was quite a difference of opinion. Some of the largest producers seemed to feel that it was not practicable, although it might be done.

Wednesday morning Mr. Greiner, who, up to this time, had taken no part in discussion, was asked to give his opinion on the proper location for an apiary. First, he said he would have a good honey location; second, good roads; third, a shady place in which to work. He could not always use an orchard, although he preferred it. Some locations out in the open, he said, have more swarming. One yard he had in dense shade gave him some of his biggest yields. Mr. Coggshall, one of the most extensive beekeepers in New York, said, "Locate anywhere, just so you do not crowd on other people." He found that clay land gives the best clover. The apiary should be well protected by undergrowth for a windbreak. At all his yards he has a building, and one key for the locks of all the buildings.

Mr. Geo. S. Demuth, of the Bureau of Entomology, next delivered an address that ought to be printed in full. We have quite a complete digest of it; and every beekeeper, especially if he intends to keep "more bees," should read it over carefully.

**PROFITABLE AND UNPROFITABLE EXPENDITURE
OF LABOR IN HONEY PRODUCTION.**

One of the remarkable things one notices, he said, when visiting beekeepers is the vast difference in the amount of time and labor expended by different individuals in accomplishing similar results. It is not always the professional beekeeper who produces his crop with the minimum expenditure of time and labor, nor is it always the amateur who produces his crop with the maximum expenditure of time and labor.

There are men here who are operating a series of apiaries with probably a less expense than others are expending on a single apiary. A peculiar thing about this feature of beekeeping is the fact that it is not a phase of the business that can readily be taught at conventions nor through the journals, nor even by visiting the more efficient beekeeper. It seems rather to come from experience — not experience measured in years of routine work in the apiary, but the experience of the manager, the experience of the man who is not so covered up with the details of his business that he is unable to see their interrelation and relative importance.

To make the problem more difficult, the beekeeper is at once both manager and routine laborer; and one tendency is to become so engrossed with the routine work that ability as a business manager may be developed slowly. Fortunately, however, beekeeping calls forth such a variety of activities that it stimulates development in various directions. Beekeeping is a business of details; and while one may be overwhelmed with the multitude of details, another with double the number of colonies, and perhaps other business interests, somehow gets through the busy season and lives to tell about it.

The paradox that the one who has the most to do has the most time for extra work, holds in beekeeping as well as elsewhere. The usual trouble with the man who is overworked is that he hasn't enough to do to compel him to systematize his work. It may, therefore, sometimes be a kindness to overworked individuals to impose extra burdens upon them.

The greatest efficiency in beekeeping is not developed by operating a single apiary of one or two hundred colonies with no other business carried on in connection. He had in mind a beekeeper who was forced into greater efficiency by a series of promotions in other business. He has gradually increased the number of colonies operated; and during the same time has been compelled to decrease the amount of time spent in the apiaries. Years ago, with a single api-

ary and but little other work, he was a very much overworked individual; but now he is operating three apiaries of 60 to 100 colonies each, for comb honey, is otherwise employed, and several hundred miles away from the bees during 10½ to 11 months of the year.

Compared with some of you, this particular beekeeper is but half grown; but it required considerable external pressure to compel him to become more efficient as a beekeeper.

The beekeeper who uses his energies and ability at "half capacity" in order to be able to label himself a specialist is paying a high price for a fancy label.

The beekeeper with 100 or 200 colonies, who hesitates about keeping more bees, should by all means take up some other work in connection with beekeeping.

The motto, "Keep more bees," should stand as a monument to the memory of the remarkable man who so patiently and persistently taught it; and it would seem like sacrilege, he said, to change it in any way; but could we not put up in big letters, "Keep more bees," then write underneath in small letters, "but if you don't, get another job to be carried on in connection with beekeeping, and work at the other job most of the time"?

The election of officers resulted as follows: President, S. D. House; Vice-president, John T. Green; Secretary, Irving Kenyon.

ODE TO A HONEY-BEE

BY T. F. NORRIS

Dear bee, thou art a rover
When the meadows bloom with clover.
From bloom to bloom thou'rt going
Where the sought-for nectar's growing.
Fearless of the rain and thunder,
Through the distant fields you wander:
Where the winding streamlets flow
Ever onward, still you go.

Onward still, thou blossom-rover,
Till the autumn flowers are over.
With too much courage for a bee,
Or any thing so small and free,
Through noon tide's scorching ray,
Ever hastening on thy way,
On thy way on pinions fleet,
Still in search of hidden sweet.

Toil on, thou restless rover;
O'er many blossoms thou dost hover;
Merrily o'er each bloom bounding,
With your merry hum resounding,
Toiling while the day is closing,
Thence homeward to thy home reposing.
Is thy home a hive or tree?
Pray tell me, dear honey-bee.

Vanceburg, Ky., Dec. 17.

Heads of Grain from Different Fields

Moving Bees in Mid-winter

On Feb. 1, 1913, bees had a flight. It turned cold that night, and we had a snowstorm Feb. 11. I moved 40 colonies about 100 yards, and a few days afterward bees could fly again. I asked my man if he noticed any bees go back to the old place. He said, "Yes, they were all down at the old place for a few days, but always went back at night." That going back at night he was just guessing about. From what I have noticed in moving a colony that had been in ten days on account of bad weather, this fall, late, and the going back last winter, I am under the impression that a lot of flying bees are lost by cold-weather moving. I have some to move a short distance, but I am not pleased with this cold-weather moving, as a flying bee has no time to hunt a home when away from the cluster in cold weather. They simply perish. I have a neighbor who was compelled to move 30 colonies from one side of his house to the other a few days ago. I asked him if they went back. He said, "Yes, but they seemed to get back home to their new location again," and added that he could not notice that he lost any.

Galena, Kan., Dec. 8. J. P. BRUMFIELD.

[Your bees had not been confined long enough to move them only one hundred yards. A far better and safer way is to put them in the cellar and keep them there for two or three months. Then you can move them to another location; but even then some of the bees may be inclined to come back to their old stands. When bees are moved out of the cellar, and put back in the same location, though not on the same stands, they will mix more or less; but this does no harm. In moving bees in midwinter from one side of the house to the other, it is desirable to have the old location changed as much as possible; and the longer the bees can be confined to their hives before they fly again the better. They will go back, providing it does not turn cold toward evening too quickly, chilling them so they can not return if they would. If there is a period of a couple of weeks of bad weather from them on, these chilled bees will never get back; but if the cold spell lasts only two or three days, and then warms up so the bees can fly, these chilled bees, as soon as they warm up, will generally take wing and go home. This is not a crude guess, for we know whereof we speak.—ED.]

Best Time to Requeen

What is the best time to requeen in central Iowa? How is it best and easiest to find the old queen?

EDWARD WURTZEL.

The best time to requeen will depend somewhat upon conditions. If there is European foul brood in a locality, and the bees are black, the sooner you do it the better. If you rear your own queens, a good time to requeen is during the swarming season. Cut out swarming-cells from the best colonies; put them into nuclei where they can hatch virgins; then allow them to mate. After they get to laying, kill the poorest of the queens in the full colonies, and put these young queens in their place. If you buy your queens the best time to requeen is after July 1, when prices are at their very lowest. During July and August, queens can usually be bought at quite a reduction in price, providing a quantity is taken.

There is no best and easiest way to find the old queen. In the case of black bees it is sometimes advisable to run all the bees through perforated zinc and catch the queen on the metal after all the bees have gone through; but in the case of ordinary Italian and hybrid bees, or any bees that will be quiet on the combs, the best way is to look over the combs carefully one by one until she is found.—ED.]

Apiaries—Proximity of to Common Highway and Line Fences

Have you any knowledge of cases tried in this State to determine the distance the law requires bees to be set from a public or private highway? The reason I am inquiring is that a party is trying to force a private highway through the edge of my apiary. Should he be successful in securing the road, would I be obliged to move my bees? I have always used this yard for my bees.

Alamo, Mich., Nov. 29. BEET WILLIAMS.

[We have no knowledge of any cases tried in Michigan to determine the distance that bees may be kept from a common highway. As a matter of precaution, however, we always advise that bees be kept as far away from roadways as possible, and in the same way advise keeping a good distance away from a line fence, especially if there is pasture on the other side, where horses or cows are allowed to pasture.

We do not know what the law would be in a case such as you describe; but we may say in a general way that you are liable for any damages that may take place. We would advise you to move your bees away from the proximity of the private roadway to be on the safe side—that is, providing you can do it, and we suppose you can. It is very much better in cases like this to avoid trouble in the first place rather than to run the danger of court proceedings.—ED.]

A Correction

Mr. Root:—I am in receipt of copies of the December 1st issue of GLEANINGS, and I wish to thank you very much for the kind words, also for ushering me to the front cover of your magazine. I wish to mention one error in the write-up. I note it reads that I am a son-in-law of Mr. H. F. Cary, which should be W. W. Cary, Jr. I think the following explanation will make clear how this came about. There was a senior and a junior Wm. Whiting Cary. Senior W. W. Cary was the man who worked with Langstroth and helped care for the first successful importation of Italian bees to Long Island, imported by Parsons. Mr. Parsons gave this Mr. Cary a supply of Italians when he returned home from his season's work in 1860. W. W. Cary, Sr., continued breeding Italian bees from that time on until W. W. Cary, Jr., took the business and added to it the vinegar business, which has developed very rapidly. Mr. H. F. Cary is the son of W. W. Cary, Jr., and he is my brother-in-law. He now devotes his entire time to the vinegar business, and W. W. Cary, Jr., spends his winters in Florida. You will note the bee business has been passed down from W. W. Cary, Sr., to W. W. Cary, Jr., H. F. Cary, and to me.

Lyonsville, Mass., Dec. 15. EARL M. NICHOLS.

Snow Does Little Damage if Entrances Face Direction the Wind is Blowing

During the snowstorm on Nov. 9 and 10, as mentioned p. 836, Dec. 1, some of our colonies were under snow to the depth of about four feet for some time. In mountainous countries, where men and beasts are occasionally caught in snowslides we know snow may be very porous, and air may pass through it quite freely; but we have all seen the result of a sudden change of weather when snow changes from a porous blanket to an air-tight covering—often in as short a time as one hour; and consequently I always look to all colonies facing any direction but east, which have no windbreak on the east. I have never found colonies with east entrances, and with no obstruction or windbreak in front of them, entirely sifted shut. There is always a blow-hole formed by the warm breath of the bees. This blow-hole

usually inclines at an angle of about 45 degrees, leading away from the entrance of the hive, and consequently drifting snow passes over it and does not drift into it or close it. If we have a wind-break in front of the entrance, snow will swirl and drift back, closing it.

Greenwich, Ohio, Dec. 9. R. J. WILILAMS.

Some Experiences with Queenless Colonies Gathering Pollen; Will Bees Gather Pollen without Queen or Eggs?

About the 10th of April a chicken caught a queen from one of my hives. I saw the chicken catch it, and thought it was then a good time for the bees to work on the pollen. On the 20th, ten days later, I opened the hive. Of course there were no eggs, but a good colony of bees for the time of the year. On the 10th I dequeened two other colonies. They also were examined on the 20th. I found no eggs in either hive, and I had cut out all queen-cells, which, of course, left them in the right condition for a trial on the pollen question. About the 23d the black-oak trees began to bloom, and they furnish more pollen than all other bloom combined in this country. They were in full bloom for over two weeks, and the queenless colonies gathered about the same amount of pollen as the other colonies. They all went at it with a rush, and kept it up during that time; but after that was over, Nos. 1 and 3 began to slack off on the pollen. No. 2, however, brought about as much as the other colonies.

I gave brood to each of the colonies for a month or more. I supplied each with brood of the same strain, and No. 2 did not let up on gathering pollen, but brought in about as much as those colonies with queens.

About six weeks after taking the queens I tried to introduce one to each hive. I failed on 1 and 2. I tried again and failed again. I then put a queen between the tops of the frames, and they were both accepted and are strong colonies now with hives full of honey and pollen.

There is a great difference in the strain of bees in gathering pollen. No. 2 had the most solid frames of pollen I ever saw. I swapped pollen for honey with other hives so as to equalize. These bees are hybrids, five or more times crossed up with Italian and brown German. They are just bees—that's all.

BROWN LEGHORNS STUNG.

I have White and Brown Leghorn chickens running in my bee-yard, and the bees will sting the Brown Leghorns, but they will not sting the white chickens at all.

E. C. FRAZIER.

Central City, Ky.

More About that Peculiar Disease

You invite information, pp. 547, 548, Aug. 1, regarding a peculiar disease appearing in Colorado and California. I have noticed this trouble in this vicinity for the last two years, but have not thought much about it until this year, when it appeared in two out of five hives which I keep in the back yard. The young bees hatch all right, but crawl around for a while and finally get out in front, never to return. Also the old bees bite the cappings and carry out bees all the way from one with just a little color in his head to bees that are ready to hatch.

I examined some of the bees that were carried out, and caught some as they left the cells, and found that some hatched without wings. Others had a part of the cocoon so tightly stuck to them that it was impossible to remove it without killing the bee, and some seemed normal. All bees that were old enough were left alive and kicking outside.

Now, I don't think this is chilling, poisoning, or paralysis, as it doesn't correspond to the symptoms of these. I fed my bees for six weeks on the best of sugar syrup without the least change, and there was

no honey in the hive and none outside to gather, so it couldn't be poisoning. There is no spraying of fruit-trees here either. The trouble commenced in May, and lasted three months, stopping suddenly. It weakened two colonies until I had to unite them, and exterminated another. It doesn't appear to be contagious, as no other colonies caught it. I hope to see more about it.

Corona, Cal., Nov. 12.

DALE RYCRAFT.

Alfalfa Honey Varies According to Locality

Mr. Chadwick seems to think that honey-plants furnish the same grade of honey in all localities. My experience with sage and alfalfa is that they do not. When keeping bees near Bakersfield, Cal., a few years ago I had two apiaries just four miles apart. One was in the district known as the "Weed Patch," where the soil was very sandy and the water was from twelve to eighteen feet from the surface. The other was on the Bloomfield ranch, where water was close to the surface, soil heavy, and with much alkali. Ninety per cent of all the honey gathered in either district was alfalfa. The honey gathered in the Weed Patch, to quote an enthusiastic friend, was "White as milk, and sweet as a sweetheart's kisses." The honey gathered in the lowlands was amber. The taste of the two honeys was different, and the dark honey probably had a higher percentage of water, as it was much easier to throw it from the combs with the extractor. Inyo Co., Cal., on the east side of the Sierra Nevada, furnishes a water-white alfalfa honey, as does the country about Reno, Nev. In Imperial Co., Cal., and Yuma Co., Arizona, alfalfa honey is dark. It is no use saying that the dark honey has been mixed with honey from weeds, etc., gathered at the same time. Bees do not put different grades of honey in the same cell, and at my Bloomfield apiary I never saw as much as one cell of white honey; yet the bees got alfalfa honey, as thousands of them could be seen working on the blossoms of the great fields of that plant about them.

Yuma, Ariz.

W. G. HKWKS.

Honey a Cure for Erysipelas

I am going to tell of an incident that happened in our family last spring. My husband's uncle, who makes his home with us, was afflicted with erysipelas in his face so that it was swollen very much. Our physician advised us to get strained honey and apply by spreading on a soft cloth and covering the parts, removing every two or three hours, bathing the parts in warm water, and applying a fresh cloth prepared as before. This we did, and in a short time the erysipelas disappeared, and there has been no more trouble with it.

Our physician, in talking about it said, "I was called to attend a young lady having a bad case of erysipelas, and did every thing I could to relieve her, but with no success until I thought of strained honey. I spread some on a cloth and applied it to her face, which was so badly swollen that all the features were obliterated. On leaving I told them to keep the application on; and next morning, when I called, her eyes were partly open. We continued the honey until we had a complete cure."

"Some time after, I was called to Cleveland to attend a man who had been under another doctor's care. He had a trained nurse who thought that I was a cross-roads doctor who did not know much; and when I told her to put on the honey she openly smiled. But I told her to do what I said, as the man was in such a bad state that I was afraid I could not save him. However, after three days he was so much better that I left for home, telling them to keep me advised as to his condition. He was cured, so I feel that honey is a sure remedy for erysipelas."

Warren, Ohio.

MRS. W. T. DARBY.

Our Homes

A. I. Root

Suffer little children, and forbid them not to come unto me, for of such is the kingdom of heaven.—
MATTHEW 19:14.

Take heed that ye despise not one of these little ones; for I say unto you, that in heaven their angels do always behold the face of my Father which is in heaven.—MATTHEW 18:10.

By the way in which I have frequently spoken of Mrs. Root, in these Home papers, some of you might imagine she was without weaknesses like the rest of humanity; and if she imagined I was going to bring out some of her weaknesses right here in these Home papers before all the world I suspect she would "go for" me with a stool or chair or whatever else might come handy. But I am going to risk it at all events; and I am going to speak of two special weaknesses. First, she will not put up with being deprived of God's fresh air. If you shut her up in a close room with the windows fastened down, and tell her she has got to sleep there she will get "fighting mad." Perhaps that is a little exaggeration after all; but still I think it is not very far out of the way. If you ask her to go to prayer-meeting, and there are more than a hundred in one little room, with the doors and windows all shut, I am afraid she loses her religion in her indignation; and I must own up that I do not know but I stand pretty near her in that respect. But perhaps I have learned to put up with bad air a little more patiently than she does, and some of her children are just like her. They say they will not go, unless they can have good air to breathe. I hope that some of the good people who complain, if a window is opened just a little, near them, will read this and think about it. (If they would pray about it too I think they would do better yet.) Many a time have I been enjoying a good sermon and feeling the spiritual uplift because some nice fresh air was coming in from the window near by, when some old person would get up and shut the window clear down, when he could have taken a seat away from the draft, with even less trouble.

Another one of Mrs. Root's weaknesses that I am going to speak of just now is that she can not keep still when she hears a baby cry; and I do believe she has more sense and wisdom in knowing how to do the right thing to make a baby happy than anybody else in the world. Now, that is a pretty big claim, is it not? I do not know all the good women in the world, and so you will have to make allowance for my narrow vision in regard to motherly women who love babies.

I told you some time ago of how a baby's plaintive cry roused Mrs. Root's motherly instincts; but for fear you did not all see it I will briefly go over it again. By some blunder Mrs. Root and I had no place to sleep except in an upper berth when coming home from Florida. I think she was a little car-sick, and feeling badly; and when told she would have to climb up into the "loft," through no fault of our own, she became a little contrary and said she would rather sit up all night. But she could *not* sit up all night, because there was no place to sit. At this juncture a good woman (thank God for good women, "the salt of the earth") suggested that her two children would gladly exchange their lower berth for the upper one; and, sure enough, it was just fun for them to climb up. By the time we began to feel happy, and were getting into our lower berth, somebody insisted on having the heat on in the steam-pipes; but the porter said we could not have a lower window open, for it was against the rules. Then Mrs. Root became cross again. She said she would not sleep in that hot place, without a breath of air, for all the money in the world. Come to think of it, however, I do not think she said that in just so many words. She said it only by action. About this time I began to be so worried and troubled that that little prayer of mine started up of itself—"Lord, help;" and right away after, Mrs. Root was startled by the plaintive cry of a baby. She asked our next neighbor about it, and was told that the young mother was so badly car-sick that she was vomiting, and a lot of women were trying to pacify the baby. They added that the sick mother had only an upper berth, and she was so sick she felt as if she could not climb up into it. Can you guess what Mrs. Root did? She fairly insisted that the poor mother with her baby should have our lower berth and we would climb "upstairs." But the mother protested against having old people like ourselves get away up there. But Mrs. Root vehemently declared she would much rather have an upper berth, and did not mind climbing up at all. There, now I have put my foot in it. Don't you see I started out to say that Mrs. Root had only *two* weaknesses—first, she always grumbled when she could not have plenty of fresh air; second, she would never lie down and go to sleep and get the rest needed when she heard a baby cry (and I honestly believe it does not make much difference whether the baby is any relation to her or not). And now I have

blundered into a third weakness. She sometimes "tell fibs" when she is in a tight place. She actually told that young mother she much preferred an upper berth, when she had told the porter an hour before that she would rather sit up all night than to climb up there.

The above reminds me that one of our grandchildren—I guess it was a little girl—after her mother had given her a spanking, after she got through crying she said to her mother, "I lofs you still." Well, like the spanked little girl, I want to say of Mrs. Root that, even if she does get cross when she does not have good air, and bounces out of bed when she hears a baby cry, and even tells fibs (the kind of fibs I have described) to help a sick mother, like the little girl. "I lofs you still."

Dear friends, the above is a rather long introduction; but it paves the way to the following, which I clip from the Youngstown *Telegram*. Just a minute right here. Do you know there are quite a few dailies that exchange with GLEANINGS? Yes, they are actually sending a paper every day for a whole year, and all they get in return is GLEANINGS twice a month. Is not this a clever world to live in? Well, below is what I read in the *Telegram*:

WELSHES AT FIRST THOUGHT BABY'S CRIES WERE THOSE OF A CAT.

The lusty cries of an eight-months-old baby probably saved its life early Sunday morning when it was found, muddy and bedraggled, in the front yard of 630 Hayman Street by Harvey H. Welsh, 709 Hayman Street. The police, after working an entire day to discover the parents or guardian of the child, are without a clue as to whom it might belong.

The infant was nearly dead from exposure when found. Had it ceased its cries it is likely that it would have lain in the yard until daybreak, and it is doubtful if it could have stood the ordeal.

According to the police the cries of the child were first heard about 8 A. M. by a sister of Mrs. Welsh. She awakened Mrs. Welsh and her husband, and the latter dressed to go out to make a search. But thinking the cries were those of a cat, Welsh took off his clothes and returned to bed.

The wails continued, and Mr. and Mrs. Welsh were again awakened by the sister who insisted that they make a thorough search. Welsh dressed himself a second time and went out. He found the infant not far away, about three feet from the sidewalk. It wore several dresses, which were water-soaked and covered with mud.

Welsh gathered the infant in his arms and took it home, and the two women set about to prepare food.

* Of course, the above about telling fibs is a pleasure. Mrs. Root never tells fibs, and will not tell even little ones. She simply changed her mind when she heard that baby cry; and even if she did change her mind rather suddenly, and was rather vehement, I hope other women, especially every mother who reads this, will be ready to change their mind very quickly under like circumstances.

I forgot to add in the proper place that, when we got up in the loft, I pulled the ventilators wide open, and Mrs. Root slept nicely, even if she did spend quite a little time helping to care for the baby and its mother. My little prayer was once more answered.



—Courtesy Youngstown *Telegram*.

They removed the wet clothing and bathed the child in warm water. The baby, which was a girl, drank the milk given her as though she were nearly starved. Her little body being warmed she fell asleep.

The police were at once notified, and took the baby to the City Hospital. Detective Moyer was detailed on the case Sunday morning, and worked the entire day without results. The child does not belong to the neighborhood in which it was found, and no one has reported to the police that a baby was missing.

The child was left purposely in the yard to be found, or to die from exposure, or may have been placed there by a drunken mother returning home from a night's revel, the police believe.

Along with the above account came the picture of that forsaken baby. Just think of it, will you? Some woman, some mother, left her own baby in a place like that; and when the police made every effort to find that mother they could get no trace of her. Of course, not all women are like Mrs. Root; but I think the greater part of them would have been called irresistibly by the cries of that poor little deserted waif. Imagine a mother, if you can, who would go away under the circumstances and leave her baby out in the cold and wet. She did not even take the pains to place it on a porch or under shelter. She probably knew it might rain, and so how could she perform an act like that? And after she went away did not her conscience trouble her? How could she sleep? how could she rest at all with that terrible burden resting on her soul, that she had thus in such a cowardly way deliberately left her own child?

In these latter days, not only are women taking up men's work, but they seem to be taking on men's vices. One of these dailies

I have mentioned has been telling about a woman pickpocket. We can imagine a man so lost to all sense of fairness and honesty as to be willing to appropriate the hard earnings of another man by picking his pocket; but is it possible that there are women also who are so lost to all sense of honor and justice? Let us now get back to that baby. We are compelled to admit that there are fathers—yes, a lot of them—who run away and leave their children. They generally leave them to burden and drag down the poor patient hard-working mother; but is it indeed true that there are women—mothers fashioned by God's hand—so lost and depraved that they would abandon their own children, and an eight-months-old babe at that?

Before we close I want you to turn over again and take a look at that baby. I have looked at it again and again, and that little pucker-up mouth, so plaintive in its distress, almost moves me to tears whenever I catch sight of the picture. As the little one lay there suffering with the cold and rain, in its baby mind it was wondering where the mother was; and it was wondering, too, where all the good people who had loved it and kissed it in time past had gone. It cried again and again for help.

We all know that babies must be kept warm. Whatever you do, do not let the little ones get chilled. Give the baby plenty to eat; and if out in the open air, protect it with the best, softest, and warmest clothing the world can afford. Jesus said, "The foxes have holes, and the birds of the air have nests; but the Son of man hath not where to lay his head." God has made ample provision for the birds and the beasts; but humanity has to be cared for—especially the first stages of humanity here in this world of ours. These same daily papers have been telling us of the appalling number of deaths of babies—little babies—and the whole world is up in arms to protect these little innocents. Not only are they to have better milk, but kind and wise nurses are sent out to instruct the mothers. God bless the nurses; and may he bless the Christian nation that is taking this matter in hand. Grown-up people are more or less to blame for their misfortunes and troubles; but babies are in no way responsible. The responsibility rests on the shoulders of the fathers and mothers—on your shoulders and mine. It rejoices my heart to think that my life-long companion accepts this responsibility. She very often becomes very tired, I know; but a baby's cry is a stronger appeal to her motherly heart than almost any thing else on earth. Let us as a people not only look out for better environment

for the babies in the way of health, but let us think of their spiritual nature. The world is just now discussing how much environment has to do with helping the babies to become God-fearing, law-abiding people instead of criminals.

The police and everybody else were asking what could have possessed a mother to forget her motherly instincts so far as to go away and leave that pitiful baby there in the wet grass and weeds to die from exposure, for no one heard its plaintive cries. The police, after long experience, suggested an explanation, and the only possible explanation for such a state of affairs. It was the old, old story of strong drink; and I suppose we shall have to admit it is true that in these latter days women are getting to be slaves to strong drink as well as the men. We have had pitiful tales of men—or they were once men—who took the shoes from their poor babies' feet and pawned them to get drink. This woman sacrificed the baby entirely, and went away and left it because she loved drink more than she did her babe.

Let us now once more take a look at that plaintive picture and then repeat the words of our text: "Suffer little children, and forbid them not to come unto me, for of such is the kingdom of heaven."

LIFE OR DEATH—WHICH WILL YOU CHOOSE?

We are told the following was clipped from the *Youth's Companion*:

THE BOY AND HIS FATHER.

"And the father laid a kindly hand on the boy's shoulder, and said: 'Come with me, son. I want to show you something.' He led the way to his workshop in the attic. There were his carpenter-bench and his tools and his lathe; and in the corner was the dynamo that worked them all. The boy had seen them all many times.

"What is it, father?" he asked.

"The father laid his hand upon the dynamo. 'Boy, by means of this a mysterious power becomes mine. We call it electricity, but no one knows what it is. We only know that, if we treat it in the right way, it will enable us to do wonderful things. It will work our mills and light our houses and our streets and run our cars. It will enable man to do more than any other power that has been discovered. But at the same time, if you treat it the wrong way, it will strike you dead.'

"Yes, father, I know that," said the boy.

"His father turned toward him with an earnestness the boy had never before seen in his face. 'There is another power, my boy, much like that in its results. There is the mysterious feeling that men have for women, and women have for men. Treat that right, and it will bless your life, and ennoble it. and make you ten times—yes, a hundred times—the man you ever could be without it. Nothing else on earth will do so much for you if you treat it right. But treat that feeling wrong, and it will curse you and blast your life and kill your soul!'

"For one moment father and son looked at each other square in the eye; then together they went downstairs in silence. In the hall below the boy put

his hand on his father's arm and whispered: "I know what you mean, father, and I know it's true."

I can say with that boy, "I know it is true." The boy spoke from a limited experience, prompted by the voice or conscience, while I speak from the standpoint of a man over 70. It is true in youth, it is true in middle age, and it is most *emphatically* true when a man gets to be threescore and ten.

Ye are of more value than many sparrows.—MATT. 10:31.

We clip the following from the *Press Bulletin* of the American Medical Association for October 25:

THE ANIMAL VERSUS THE HUMAN BEING.

Inquiry was recently made of the Minnesota State Board of Health as to a certain family affected with tuberculosis. The family was large and the house small, so that such care could not be given to the afflicted as to prevent the infection of others. The father had means and could afford to care properly for those diseased, if compelled to do so. A State inspector was sent to investigate, and this is what he found. A well-to-do farmer, with a farm of 820 acres, worth \$100 an acre or more; a breeder of horses, having at the time of inspection seven imported Percheron horses and a herd of about twenty-five horses in all; a breeder of registered hogs, his hogs being among the first in the State to be given the serum protective against hog cholera. This farmer has lived in _____ County for about thirty years. Sixteen years ago his first wife died of tuberculosis, leaving three children. He married again. His second wife had thirteen children. The family now consists of father, mother, and fourteen children. A daughter of the second wife, aged 15, died last August of tuberculosis. A son of the first wife, aged 19, has been ill with tuberculosis for at least two years. No precautions have been taken to prevent his infecting others. The mother, with one newly born child and another too young to walk, is responsible for the care of this family of fourteen living children. There is no medical care being given the son afflicted with tuberculosis. Apparently this farmer can appreciate the breeding of horses and the protection of hogs from hog cholera; but he can not appreciate the danger of tuberculosis or the need of protecting not only the members of his own family, but others also, from this disease. The annual loss, in Minnesota, caused by the death of wage-earners from tuberculosis, is about \$12,000,000. The number of deaths annually from tuberculosis in Minnesota is about 2250. The estimated number of cases of tuberculosis in Minnesota at the present time is 10,000 or more. Is this human disease worthy of the same efforts for its extermination as is hog cholera or glanders?

APPLES AND OLIVE OIL.

We clip the following from the *Rural New-Yorker*:

The latest "sure cure" for catarrh is living 90 days on apples and olive oil.

So far as apples are concerned, I am fully in accord. I do not know much about the olive oil, but very likely it might make a "balanced ration" with apples, something like the little bit of cheese that I use with my apple supper. Who will test the above and report?

FLYING-MACHINES UP TO DATE; 900 MILES IN 900 MINUTES.

As GLEANINGS was the first periodical on the face of the earth to give an eye-witness account of the Wright brothers' first flight to make the machine come back to its starting-point, it is no more than proper that GLEANINGS should occasionally notice the progress that is being made in navigating the air. The steps of progress are so rapid now, and as our daily newspapers and magazines are full of it, it would take too much space to give here an account of *all* that is being done. Just now, however, the world is startled by M. Pegoud, who not only "loops the loop," but flies quite a little distance with the machine upside down. Of course he has straps to hold him securely to his seat. At first the world was inclined to say his success was accidental—that he could not do it again; but he has done it again and *again*, and I think he says it is no very difficult trick. The whole thing is described, with some very good illustrations, in the *Independent* for Oct. 23. We give below the closing paragraph of the article:

At the present time the cost of aeroplanes still ranges from \$5000 to \$10,000 per machine, which is too high for the average man; and the sportsman and enthusiast has an extremely safe craft in the water aeroplane—the airboat, which is essentially a boat with wings, and the hydro-aeroplane, which is an aeroplane with floats to enable it to land on water. Water-flying is much more safe than land-flying, because the water always presents a flat surface to start from and land on; and, in case of a spill, the aviator, who is dressed in a floating coat, just gets a drenching. A score of American sportsmen acquired airboats in the past summer and flew them continually, and made from 60 to 80 miles an hour while they flew them; and two of them actually flew from Chicago to Detroit, 900 miles, which they covered in 900 minutes, going through a succession of storms which no boat could have weathered; but there were no accidents, not even a drenching. The demonstration of the safety of water-flying was so conclusive that scores of other sportsmen were converted, and the four principal aeroplane constructors—the Wrights, of Dayton, Ohio; Curtiss, of Hammondsport, New York; Burgess, of Marblehead, Massachusetts, and Benoist, of St. Louis, Missouri, are working overtime turning out this sort of machine.

New York City.

I am not prepared to say exactly who should have the credit for the water aeroplane, as it is called above; but I do know that the Wright brothers made experiments wth a craft to skim over the water of the Miami River, that passes through Dayton, a good many years ago, and before any thing of the kind was mentioned in the papers. This I did not get from the Wright brothers themselves, but from one of their workmen. The Wright brothers certainly have the credit (and I guess it is acknowledged world-wide) of making the first heavier-than-air machine to rise up from the

ground; and I am inclined to think they were the first in the world to experiment with hydro-aeroplanes. Somebody will probably cross the ocean very soon with such a craft. If they can go a mile a minute, and skim along in spite of wind and wave, there will be comparatively little difficulty in making the trip. We clip the following from the *Cleveland Plain Dealer*:

TESTS NEW AIR-CRAFT; ORVILLE WRIGHT SHOWS ONE PROPELLER MODEL AT DAYTON, OHIO.
DAYTON, Ohio, Oct. 6.—Orville Wright, himself

driving to-day, tested out his latest aeroplane model in a series of successful flights.

The new model has but one propeller, which with the motor, seat, and drive, is in one unit in the center section, as compared with the former two-propeller machines, with blades in opposite directions. The new model "E" is made especially for exhibition purposes, and is capable of dismantling in short time.

Much of the machine is built of aluminum. In a test against time a flight was made, and the entire machine dismantled and loaded ready for shipment in twelve minutes. This model has been viewed by representatives of the International Club. Another test will be made Oct. 15.

High-pressure Gardening

THE DASHEEN AND SOMETHING ABOUT IRISH POTATOES, ALSO.

I have spoken several times of the difficulty of getting Irish potatoes suitable for planting here in Florida, say in October and November, and we had the same trouble this year. Of course, there are potatoes on the market, but only those recently harvested, and therefore no sign of a sprout started. Two years ago we tried keeping over the potatoes we grew, and dug in April; but the rats got into our cellar in our absence and ate them all; and this past summer, when we boxed them up secure from the rats, they all rotted. On that Brooksville trip through the "wilderness" in front of a lone dwelling I saw some beautiful sprouted potatoes on the grass in the yard. The owner explained that he kept them through the summer without any trouble by simply spreading them out on the barn floor; and since then I have met several people who kept them in a similar way so as to be all ready for planting when they returned from the North. Neighbor Ault, the man of the tall dasheens, is just now digging beautiful new potatoes, and has sent us a panful to mix with our "creamed" dasheens, and, I may also add, very nice new potatoes are on sale, where I sell my eggs, at 60 cts. a peck. We have been, for a month back, fitting our ground and planting Bliss Triumph potatoes as well as dasheens.

In regard to dasheens, see the following, which I have just clipped from the *Jacksonville Times-Union*:

It will not grow in soil suitable for cotton, but may be grown in soil suitable for potatoes. The importance of the dasheen to the Southerner lies particularly in the fact that it matures in the fall, whereas the main potato crop in the South matures in the spring, and in winter the Southern States have to obtain their potato supply from the North. If dasheens were grown and properly appreciated there would probably be little need for the South ever to buy northern-grown potatoes for food.

DISTRIBUTED FROM BROOKSVILLE.

The department's office of foreign seed and plant introduction, which has been the means of making

the dasheen known in America, has received a number of letters like the following:

"On March 20, 1913, I received from your department some dasheens shipped by the Brooksville, Fla., station. I planted them March 24, on a loamy soil here in Monroe, La., two blocks west of Ouachita River. They soon came up and were large enough to begin eating the greens and stems, which our family soon became very fond of. I grew 40 hills. The plants grew up 5 feet high. Some of the plants made only 5 pounds of dasheens while others made as much as 10 pounds to the hill. I have not dug mine yet. In fact, I can leave them in the ground this winter here, as the ground does not freeze so much here. We have been eating the dasheens for some time, and like them better than Irish potatoes.

"I think you should add another name to them, and call them 'dasheen, or poor man's friend,' since any person with very limited space can plant a few hills in a garden or yard early in spring, and have nice fresh greens from early spring until frost, and then, best of all, come the tubers."

Let me say once more, where in the world can you find another plant (or vegetable) that produces a nourishing and delicious food just as soon as it is above ground, and also where every bit above ground and under the ground is edible at every stage of its growth, and that gives a yield like that mentioned in the clipping! At this date, Dec. 20, I have seen no 1914 seed catalogs. I am curious to know how many will have enterprise enough to offer dasheen tubers. They will need but little room in greenhouses, hot-beds, cold-frames, and window-boxes, until the big leaves begin to spread themselves. Our "amadumbes" from South Africa are growing finely, and so far look very much like the dasheen. As the beautiful leaves unfold I am watching them morning, noon, and night.

I find I omitted one important fact in regard to the dasheen at the Government station at Brooksville. While there was a fair yield of tubers on ground without manure or fertilizer, the yield was almost doubled by a generous application on several rows through the middle of the field. The amadumbe I have several times mentioned (from South Africa) is now making a splendid growth. A leaf just unrolling grew 5 inches

(during a warm rain) in 24 hours. So far it looks almost exactly like you: Trinidad dasheens. Of course I have not as yet tested them for food.

THE DASHEEN MAY YET SUPPLANT THE POTATO; NEW VEGETABLE MAY REVOLUTIONIZE OUR BILL OF FARE IN TIME.

I clip the following from the Jacksonville *Times-Union*:

A recent issue of the New York *Sun* had the following:

From Florida comes the report that the dasheen is finding much favor among the farmers of that State, and that it is becoming popular as table food, thanks to the experiments of the State Agricultural Department and to the government farmers at the Brooksville, Fla., plant-introduction field station and elsewhere.

The government's interest in the cultivation of the dasheen is due to its anxiety over the Irish or white potato, which has developed a tendency to contract various diseases, and which is admittedly becoming more uncertain in quality and quantity as the harvests go on.

In a recent number of the *Fruitman's Guide* a Florida correspondent writes that the successes of the Florida farmer in cultivating dasheen will make the Northern farmers sit up and take notice. He points with pride to the crop of a former Jerseyman named Porteus, who planted five acres to dasheen near Tampa and raised 35,000 pounds, or nearly 700 bushels, of the vegetable to the acre. Partice, he says, expects to clear the snug sum of \$5000 for his season's work, or a cash return of \$1000 to the acre.

The correspondent admits that the price of dasheen (5 cents per pound) is high; but insists that its general cultivation will reduce prices.

Florida, he says, is particularly adapted to the raising of dasheen, as it will grow in the summer months on land that is not generally used for any other purpose. The land where the ex-Jerseyman's crop was raised was planted to celery on November 1 of last year, and produced \$1400 to the acre; and on February 1 he planted Irish potatoes, realizing \$500 to the acre. On June 1 he put in dasheen, which at \$1000 per acre will give him a grand total of \$2900 per acre for his year's work.

According to Robert A. Young, scientific assistant in Uncle Sam's office of foreign seeds and plants of the Agricultural Department, the dasheen is closely allied to the taro of Hawaii, China, and Polynesia, and is well adapted for culture in most lands of the South.

Each hill of dasheens contains one or two large spherical corms, growing to five pounds in weight, around which are developed numerous tubers. Both corms and tubers are similar to the potato in composition, but contain less water.

One plant will produce from four to ten pounds of tubers in good rich soil. Both corms and tubers have an agreeable nutty flavor and are easily digested.

Government analyses show that dasheen contains 27.2-3 per cent of carbohydrates (starches and sugar), and 3 per cent of protein, as against 18 per cent carbohydrates for the white potato and 2.2 per cent of protein.

The dasheen requires rich sandy soil, very moist, but well drained. It is not injured by an occasional flooding, and the hammock lands of Florida are therefore especially adapted to it.

The corms do not keep as well as the tubers, and it is considered advisable to utilize them first. The first-grade tubers weigh from four to five ounces, and are thought by many to be superior to the Irish potato.

It is believed that the dasheen will be a familiar vegetable in our markets before long.

Temperance

GOD'S KINGDOM COMING.

We clip the following from the *Farmer's Wife*:

SUFFRAGE IN ILLINOIS.

The advocacy that Illinois is going to the bad, and that women vote for politics instead of principle, was smashed to smithereens on November 4, when the women of that State got out and voted four to one in favor of no license in 25 different municipalities. In Jacksonville the total vote showed an excess of women's votes over those cast by men to the number of 39. In many of the towns the vote of women was almost equal to that of men.

Illinois is a crucial field, a field wherein women have not been wholly united in the desire for suffrage, but where it has been granted to them. The results of this election prove that when women have a duty to perform they measure well their moral responsibility, and go out and perform that duty to the best of their ability.

And now read this from the *Wheeling Advance*:

OKLAHOMA CITY, Sept. 25.—Not a newspaper in this State will carry a liquor advertisement in any form—it is the only State in the country with such a reputation.

Can any other State come up to this "high-water mark"?

GOD'S KINGDOM COMING DOWN IN TEXAS.

We clip the following from the *American Advance*. Please notice concluding sentence.

Texas' new anti-liquor shipment law, which has just gone into effect, prohibits the shipment of intoxicating liquors into any dry county, dry town, or even dry precinct, from any State, wet county, or wet precinct; and every man participating in the transportation of liquors, even from a wet portion of a city to a dry section of the same—shipper, carrier, agent, receiver—is made liable to prosecution under a penalty clause providing from one to three years in the penitentiary as a persuader against violation. No firm, corporation, or person is allowed to solicit or accept orders in or from dry territory by letter, circular, or other printed matter.

Now read the following from the *Union Signal*:

The attorney-general's department of Texas is reported to have handed down an opinion that newspapers are prohibited from carrying liquor advertisements in papers circulating in dry territory.

Our big city dailies will begin to think things look serious when told they can't send copies containing liquor advertisements into Texas.

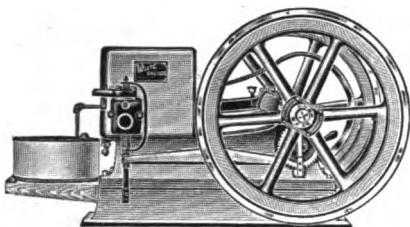


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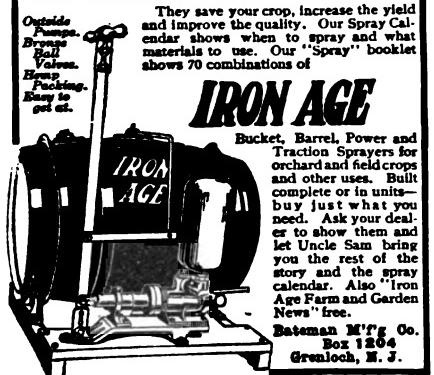
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Bucket, Barrel, Power and Tractor Sprayers for orchard and field crops and other uses. Built complete or in units—buy just what you need. Ask your dealer to show them and let Uncle Sam bring the army and the spray calendar. Also "Iron Age Farm and Garden News" free.

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is the only range with Stone Oven Bottom "No-Odor" Hood and Dustless Ash Sifter

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Free trial of ten days will convince you that Quaker City Mills grind fine and rapidly any grain, separate or mixed, ear or shelled corn, coarse or fine meal, also husks as well as cobs and corn. For 47 years we have built mills for REAL work.

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That's what my father said to me when I was a kid—and that's what I'm doing when I send you my Belle City hatching outfit. 276,000 users will tell you so. I'm giving you more, when you compare my

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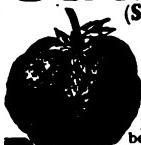


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Strawberries and all Small Fruit Plants mean big and quick profits for you at a small outlay of money. We are headquarters for Summer and Fall Bearing Strawberry Plants, Raspberries, Blackberries, Gooseberries, Currants, Grapes, Fruit Trees, Roses, Ornamental Shrubs, Eggs for Hatching, Crates, Baskets, Seed Potatoes, etc. Best varieties, lowest price. 30 years' experience. Free catalogues is full of valuable information. Write today.

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Wood-working Tools with Character

Keen Kutter tools *have character and quality.* They make a man do better work and faster work. They have the best stuff in them that money will buy, and first-class workmen make them. You ought to have Keen Kutter tools in your shop for quick repairs of sudden breaks, for building that new brooder house, for new floors, for the horse stalls, for making the feed bins rat-proof. For any of the many jobs you want to do right now.

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Tools will serve you as no other tools can or will. So good are they, and so positive are we that you'll get the very limit of long wear and good work out of them, that they're sold with the distinct understanding that you can get your money back, double-quick, for any tool you say isn't everything that it ought to be. Just tell the dealer. He is authorized to give you back your money.

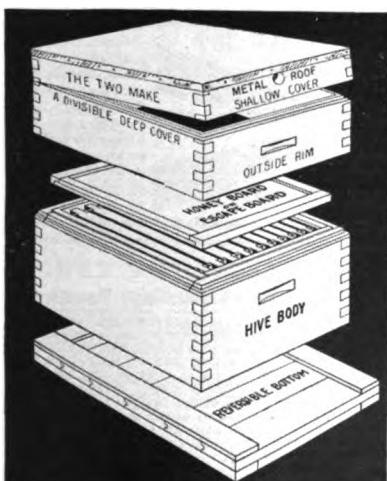
*"The Recollection of Quality Remains,
Long After the Price is Forgotten."*

Trade Mark Registered. —E. C. SIMMONS.

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PROTECTION HIVE

The Shallow Metal-roof Cover and the outside rim make a divisible deep cover which can be handled together or in part. They eliminate the chaff-tray nuisance and the heavy bunglesome deep cover in manipulation. The rim holds the overhead packing in winter, and acts as a super protector at other times. This combination is the finest in hive construction on the market to-day.

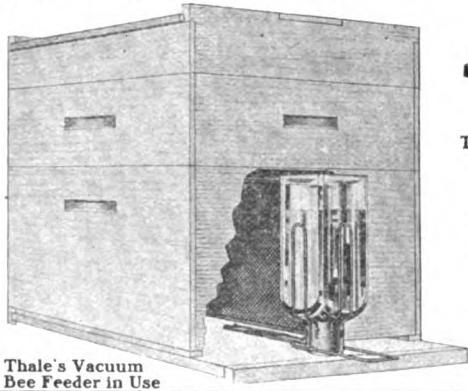
Dead-air spaces or packing, as you prefer; $\frac{1}{8}$ material in the outer wall. Special circular showing 16 large illustrations will explain all.

**A. G. Woodman Co.,
Grand Rapids, Mich.**

Thale's Regulative Vacuum Bee Feeder!

MOST perfect stimulative feeder ever constructed. It feeds inside underneath the cluster, and will fit any hive made. To fill feeder, lift off empty bottle and set on full one. It is so regulated by the slide from the outside of the hive to feed any amount that you may want the bees to have in one day. If you set it on one-half pint in one day the bottle of feed will run four days and nights and can be increased or decreased from the outside of the hive without disturbing the bees or moving the feeder. It feeds continuously, thereby imitating a natural honey flow, and will produce more brood with less cost than any other feeder made, and can be filled any time of the day without causing robbing or excitement.

Send for feeder circular and bee-supply catalog. I carry a full line of Lewis Beeware and Dadant's Foundation. One of my Vacuum Bee Feeders complete with two bottles FREE with every ten-dollar order. Send me a list of your wants—it is no trouble to answer letters.



Thale's Vacuum
Bee Feeder in Use



Thale's Vacuum Bee
Feeder in Detail

TERMS, CASH WITH ORDER

Sample Feeder, with 2 bottles complete, mail postpaid,	55c
Ten Feeders, complete with 1 bottle, freight or exp.,	35c
All orders over ten feeders only	30c
Extra bottles with cork valve, each	10c

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Inventor and Manufacturer
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MAYWOOD, MISSOURI

New Potato
Olds' Scotch Rural
350 Bus. Per Acre

A main-crop Rural type potato of new blood. Yields twice as much as Rurals and other standard varieties. Not affected by blight, drouth or bugs.

Olds' 1914 Catalog

gives full description and prices, this and other varieties potatoes, field seeds, garden seeds. Ask also for

Free Collection Field Seeds

L. L. OLDS SEED CO., Drawer 8, Madison, Wis.

CARFF'S 5000 bushel crop
1912 Tested and
sure to grow. Finest
quality. 20 leading
varieties. Also Seed
Oats, Barley, Grass
Seed, Potatoes, etc.
Samples on applica-
tion, 1100 acres. Be sure to get
our new catalog. Write today.
W. N. Scarff, Box 67, New Carlisle, O.

RHODES DOUBLE OUT PRUNING SHEAR



Cuts from
both sides of
limb and does
not bruise
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We pay Ex-
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RHODES MFG. CO.

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GRAND RAPIDS, MICH.

Guaranteed Fruit Plants

Healthy, northern grown Strawberry, Raspberry, Blackberry, Currant and Grape plants—all covered by the following liberal guarantee:—All plants guaranteed to be first-class and true to name, packed to reach you in good growing condition (by express) and to please you, or your money back. You take no chances. Send for catalog today. O. A. D. Baldwin, E.E. 82, Bridgman, Mich.

YOUR HENS YOUR FARM YOUR MONEY

Farmers and Fanciers should get the FREE POULTRY BOOK and Catalogue written by ROBERT ESSEX, well known throughout America. After 25 Years With Poultry. It tells How to Make Money From Eggs and Hens for Market or Show, contains Pictures of 30 Poultry Houses, tells cost to build; describes AMERICA'S LARGEST LINE OF INCUBATORS AND BROODERS—\$2.25 to \$48 each. Write today.

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Classified Advertisements

Notices will be inserted in these classified columns at 25 cents per line. Advertising intended for this department must not be less than two lines, and should not exceed five lines, and you must pay your advertisement in the Classified Columns or we will not be responsible for errors.

HONEY AND WAX FOR SALE

See our special sale of honey on advertising page 11 of this issue. THE A. I. ROOT CO., Medina, O.

Bronzed honey labels, 1000 for 80 cts.; others, 60 cts. per 1000. PEARL CARD CO., Clintonville, Ct.

FOR SALE.—White-clover honey, thoroughly ripened; A1 quality. E. C. PIKE, St. Charles, Ill.

FOR SALE.—Choice extracted honey in new 60-lb. cans at 9 cts. per lb. J. P. MOORE, Morgan, Ky.

FOR SALE.—Finest quality comb and extracted buckwheat honey. J. M. ELSBEE, Waverly, N. Y.

FOR SALE.—Tupelo honey, barrels and cans. Fine and white. Sample, 16 cts. I. J. STRINGHAM, 105 Park Place, New York.

FOR SALE.—Finest quality clover and buckwheat honey in 60-lb. cans. C. J. BALDRIDGE, Homestead Farm, Kendal, N. Y.

FOR SALE.—White-clover honey in 60-lb. cans. Ripened on the hives. There is nothing finer in every respect. J. F. MOORE, Tiffin, Ohio.

FOR SALE.—No. 1 white comb, \$8.50 per case; No. 2, \$8.20; 24 lbs. to case. WILEY A. LATSHAW, Carlisle, Ind.

FOR SALE.—Well-ripened amber extracted honey in 60-lb. cans at 7½ cts. per lb. Sample 5 cts. H. J. AVERY, Katonah, N. Y.

FOR SALE.—Several tons of raspberry-milkweed honey (mostly milkweed) in new 60-lb. cans (two in case), a very fine honey. Write for price. Small sample free. P. W. SOWINSKI, Bellaire, Mich.

FOR SALE.—White-clover honey, none better. In 10-lb. pails, six in a case, at \$6.50 per case; 5-lb. pails, 12 in a case, at \$7.00 per case; ½-lb. glass jars, 24 in a case, at \$2.80 per case. Sample, 4 cts. Also in 60-lb. cans, very nice amber honey. HENRY STEWART, Prophetstown, Ill.

Buyers of honey will do well by sending for the January number of *The Beekeepers' Review* containing the name and address of over 100 National members having honey for sale. It is free for the asking. THE BEEKEEPERS' REVIEW, Northstar, Mich.

FOR SALE.—Blended raspberry, buckwheat, and goldenrod honey; has a thick body and a strong and very rich flavor. Put up for sale in new 60-lb. tin cans. Price \$5.00 a can. Sample by mail, 10 cts., which may be applied on an order for honey. ELMER HUTCHINSON, Pioneer, Mich.

HONEY AND WAX WANTED

WANTED.—Comb, extracted honey, and beeswax. R. A. BURNETT & Co., 173 So. Water St., Chicago.

WANTED.—Comb honey and beeswax. State what you have and price. J. E. HARRIS, Morristown, Tenn.

WANTED.—Honey, extracted and comb. Will buy or handle on commission. Beeswax—will pay highest price. HILDEBOTH & SEGELKEN, New York, N. Y.

FOR SALE

FOR SALE.—A full line of Root's goods at Root's prices. A. L. HEALY, Mayaguez, Porto Rico.

FOR SALE.—Full line of Root's goods at factory prices. E. M. DUNKEL, Osceola Mills, Pa.

FOR SALE.—40 H. P. Westinghouse D. C. dynamo. A bargain. A. T. SENECA, Moline, Ill.

FOR SALE.—A good cabinet-maker's bench; just the thing for the beekeeper. LEON MORRIS, Elizabethtown, Ind.

Beekeepers, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap. WHITE MFG. CO., Greenville, Tex.

New crop of extra-fine quality alfalfa seed, \$7.00 per bushel; sacks, 25 cts. extra; also some sweet-clover seed. R. L. SNODGRASS, Augusta, Kan.

FOR SALE.—Empty second-hand cans, two cans to the case; good as new; 25 cts. per case.

C. H. W. WEBER & Co., Cincinnati, Ohio.

FOR SALE.—Better hive for less money. Beekeepers' supplies and standard-bred Italian bees. Write for catalog. A. E. BURDICK, Sunnyside, Wash.

FOR SALE.—One Vandevort brood and one surplus foundation-mill in fair condition; \$8.00 takes the two. F. W. LESSER, East Syracuse, N. Y.

The best of bee goods for the least money. Send for new catalog. Satisfaction guaranteed or money refunded. H. S. DUBY & SON, St. Anne, Ill.

FOR SALE.—One check-protector, a device for protecting commercial paper. Will be useful in business houses. Will sell at far below cost. Correspondence solicited. MRS. W. Z. HUTCHINSON, Flint, Mich.

FOR SALE.—Root's goods and Dadant's foundation at factory prices, F. O. B. Pacific Coast points in quantity lots. Smaller lots in proportion. Write us, stating your wants.

SPENCER APLARIES CO., Nordhoff, Cal.

FOR SALE.—75 1½-story single-walled 10-frame hives, good condition; complete except sections and foundation, \$1.25 each. One two-frame Root automatic extractor like new, \$10.00. One Doolittle wax-extractor, \$8.00; nine new 60-lb. cans in cases, \$8.00 for the lot. Write for catalog of our new double-walled hive.

L. F. HOWDEN MFG. CO., Fillmore, N. Y.

POULTRY

Rhode Island Reds. Strong baby chicks for sale. Write me. E. O. WALTZ, Medina, Ohio.

LEGHORNS.—Eggs for hatching. S. C. W. Leghorn, \$5.00 per 100; \$1.00 per 15. Send for catalog. WOODWORTH FARM, Wilton, Ct.

Indian Runner breeding-ducks laying now. Utility and exhibition stock (pure white eggs) sent on approval. DEBROY TAYLOR, Box G, Lyons, N. Y.

Eggs.—20 for \$1.00; leading varieties prize poultry, pigeons, hares, etc. Booklet free. Large illustrated catalog, 10 cts. F. G. WILE, Telford, Pa.

Rhode Island Reds. Partridge Wyandottes, Motley Anconas, White Leghorns, White Cornish; Pekin, Rouen, Fawn, and White Indian Runner ducks; also pure white Indian Runners and White Call ducks. Line-bred stock for sale. Eggs to set. Prices reasonable for high-class stock.

L. G. CARY, Trimble, Ohio.

REAL ESTATE

Virginia Orchard Lands, \$15 an acre up. Easy payments. Send names of two friends interested in Virginia, and receive our beautiful magazine one year free. F. H. LABAUME, Agr'l Agt Norfolk & Western Ry., Room 246, N. & W. Bldg., Roanoke, Va.

ALFALFA.—The Royal Legume is increasing \$20 an acre land in the Southeast to \$50 and \$100 values. Four to six tons per acre, selling at \$15 to \$20 a ton, net growers \$50 to \$75 an acre annually. Send for alfalfa booklet and "Southern Field" magazine—all free. M. V. RICHARDS, Land and Ind. Agt. Southern Ry., Room 27, Washington, D. C.

WANTS AND EXCHANGES

I PAY CASH for used beehives. Any quantity.
JAMES RENWICK, Leroy, Ind.

WANTED, SOUTHERN QUEENS.—200 for May delivery.
F. B. CAVANAGH, Hebron, Ind.

FOR SALE OR TRADE.—"Gleanings in Bee Culture," vols. XLI. to XXXI. C. G. MARSH, Kirkwood, Broome Co., N. Y.

FOR SALE.—Some ditched rich level marsh land; splendid location. Do you know of desirable honey location? If so, kindly write me.
D. E. LHOMMEDIU, Colo, Iowa.

WANTED.—To lease large apiary or work on salary. Have had experience in several States, and can furnish best of references. State salary or terms in first letter. JAS. D. ARVIN, box 237, Millinocket, Me.

WANTED.—100 or more colonies bees in Southern Idaho, from location free from any disease. Please describe fully, with price wanted, and date delivery can be made. Box 18, GLEANINGS, Medina, O.

WANTED.—To correspond with one or two beekeepers in Santa Clara or Sacramento alleys who desire to increase their apiaries this season. Will furnish supplies and take bees in exchange.
JAMES BROWN, care of GLEANINGS, Medina, O.

WANTED.—To furnish every beekeeper within 500 miles of Boise, Idaho, with the best and cheapest bee supplies on the market, *quality considered*. Send me your order or a list of your requirements for 1914. Our catalog and price list will be mailed to you free. Order early and get the discounts.
C. E. SHRIVEE, Boise, Idaho.

BEES AND QUEENS

FOR SALE.—50 to 200 colonies, eight-frame, first-class.
E. F. ATWATER, Meridian, Idaho.

Pure Italian bees or their hybrids, in L. 10 frames, wired, full foundation, 1 or 100.
JOS. WALBARTH, Antioch, Cal.

FOR SALE OR SHARES.—280 colonies in Mississippi. One of the best honey-producing sections in U. S. Good modern comb outfit. N. F. GUTE, Owosso, Mich.

California Golden queens produce the bright workers, equal to any. Tested, \$1.25 to \$2.50; mated, \$1.75; 12, \$8.00; 50, \$32; 100, \$60.
W. A. BARSTOW & CO., San Jose, Cal.

1914 queens. Moore's strain of leather-colored Italians in April at 75 cts. Write us for prices on nuclei. Address
OGDEN BEE AND HONEY CO., Ogden, Utah.

FOR SALE.—Golden Italian queens that produce golden bees; for gentleness and honey-gathering they are equal to any. Every queen guaranteed. Price \$1.00; 6 for \$5.00.
WM. S. BARNETT, Barnett's, Va.

Golden Italian queens that produce golden bees, the brightest kind, gentle, and as good honey-gatherers as can be found. Each: \$1.00; six, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.
J. B. BROCKWELL, Malvern Hill, Va.

Phelps' Goldens combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; tested, \$2.00 and \$3.00; breeders, \$5.00 and \$10.00.
C. W. PHLEPS & SON,
3 Wilcox St., Binghamton, N. Y.

QUEENS.—I am wintering 350 choice tested three-banded Italian queens raised last September. Ready for delivery March 20 to April 10. Price \$1.50 each. Select, \$2.00. Untested, 1 queen, \$1.00; 10 queens, \$7.50. Order early. No poor-looking queens sent out. Send for circular. H. PERKINS, Artesia, Cal.

We require our bees every year with best Italian stock to prevent swarming. We offer the one-year-old queens removed from these hives at 50 cts. each. \$5.40 per doz.; \$40 per 100. Delivery guaranteed. Book orders now. Nuclei, any quantity, two frames, \$1.50; 3 frames, \$2.00. Add price of above queens wanted.
SPENCER APIARIES CO., Nordhoff, Cal.

Good QUEENS.—Good queens are a real necessity in any apiary if best results are to be expected. The old leather-colored three-band Italians have proven themselves to be the best general-purpose bees extant. These I can supply in any quantity you may wish. Untested, \$1.00 each; \$4.25 for six; \$8.00 per dozen. Safe arrival and satisfaction. All orders will have prompt attention.
E. J. ATCHLEY, Bloomington, Cal.

Queens bred from Moore's and Doolittle's best Italian stock; untested, 60 cts. each; \$6.60 per doz.; \$50 per 100. Tested, 90 cts. each; \$10.20 per doz.; \$80.00 per 100. Delivery guaranteed. Book orders now. Nuclei, any quantity, two-frame, \$1.50; three-frame, \$2.00. Add price of above queens wanted.
SPENCER APIARIES, Nordhoff, Cal.

FOR SALE.—Italian queens bees by the pound. Ready for delivery by April 1, 1914. Having over 600 colonies of bees and 500 nuclei from which to draw, we expect to fill all orders very promptly. For a number of years we have been constantly improving our stock with commercial queen-rearing in view. Now we are in a position to guarantee satisfaction to our customers. Give us a trial order. Write for prices, etc.
BROWN & BERRY, Hayneville, Ala.

EARLY QUEENS.—Those who desire early queens can be supplied by sending orders to us. Only three-band Italians stand the severe test against diseases, and our bees are clean. Untested queens, \$1.00 each; \$4.25 for six; \$8.00 per dozen. Always safe arrival and satisfaction to everybody. If you desire queens in large lots early, better let us book you as soon as convenient, and money can be sent when queens are wanted. Your check is good, or any way you wish to remit.

THE RIALTO HONEY CO., Box 73, Rialto, Cal.

Many men of many minds; but the minds of practical beekeepers are turned toward the old reliable three-band Italians. We have them in their purity, new blood, new importation. Untested queens from March to June, \$1.00 each; \$4.25 for six, or \$8.00 per dozen, safe arrival and satisfaction to all customers. Write for prices on large quantities. You do not have to return dead queens to us—just state it so on a postal card, and queens dead on arrival will be replaced promptly.

THE GOLDEN RULE BEE CO., Riverside, Cal.

PIGEONS

Pigeons! Pigeons! Thousands, all breeds; lowest prices; satisfied customers everywhere. Start with our \$8-making Jumbo Squab-breeder. Large, free, instructive, illustrated matter.

PROVIDENCE SQUAB CO., Providence, R. I.

HELP WANTED

WANTED.—Help in apiaries, 1914. Salary or shares. F. B. CAVANAGH, Hebron, Ind.

WANTED.—A good queen-breeder; begin March 1 or sooner. Give full particulars in letter of application. W. D. ACHORD, Fitzpatrick, Ala.

WANTED.—Help in an American apiary. Work the year round, and good wages to the right man. Man and wife preferred. H. H. ARNOLD, Trinidad Honey Co., Trinidad, Cuba.

WANTED.—Young single man, familiar with bee business, to help with supplies, honey, and queen-production. We furnish board and lodging. State wages wanted. THE PENN CO., Penn, Miss.

WANTED.—Another young man of good habits, who is interested, to work with bees and on farm for coming season. Have nearly 1000 colonies.

N. L. STEVENS, Venice Center, N. Y.

WANTED.—Man (married preferred) experienced in queen-raising; employment by the year on a salary and percentage.

OGDEN BEE AND HONEY CO., Ogden, Utah.

I could take two or three young men of good clean habits to learn beekeeping during the season of 1914; crop last year, 80,000 lbs. Board free, and something more if we both do well.

R. F. HOLTELMANN, Brantford, Ont., Canada.

WANTED.—Three good bee-men for season of 1914, for work in Idaho and California. Must be strictly temperate, industrious, and willing to work hard in the busy season. State experience, age, and salary required, in first letter. N. M., care of GLEANINGS, Medina, Ohio.

WANTED.—Young man to work in greenhouses and gardens, and look after small apiary. Must be a quick willing worker who wants permanent position with a chance to learn and work up in the business. Excellent opportunity for poor boy from small town. Must have sufficient experience with bees to make increase and prevent foul brood getting a start.

W. B. DAVIS CO., Aurora, Ill.

SITUATION WANTED

WANTED.—Position with a large honey-producer—extracted preferred. Age 28; weight 160; no bad habits; past two seasons with largest apiarist in Northwest. Reference. Address

FRANK F. STOCKWELL, Box 284, Meridian, Ida.

BEEKEEPERS' DIRECTORY

If you need queens by return mail send to J. W. K. SHAW & Co., Loreauville, Iberia Parish, La.

Nutmeg Italian queens, leather color, after June 1, \$1.00. A. W. YATES, Hartford, Ct.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York.

Quirin's famous improved Italian queens, nuclei, colonies, and bees by the pound, ready in May. Our stock is northern-bred and hardy; five yards wintered on common stands in 1908 and 1909 without a single loss. For prices, send for circular.

QUIRIN-THE-QUEEN-BEEDEE, Bellevue, Ohio.

QUEENS.—Improved red-clover Italians, bred for business. June 1 to Nov. 15, untested queens, 75c. each; dozen, \$8.00; select, \$1.00 each; dozen, \$10; tested queens, \$1.25 each; dozen, \$12.00. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Boyd, Ky.

MASON SAVES YOU MONEY FENCE

Lowest Prices, Highest Quality. Largest stock & quickest service. Every thing in fences and gates direct from our factory. Money-back trial, 60 days. Can you beat it? Write for FREE CATALOG. MASON FENCE CO., Box 82, Leesburg, O.

SPRAY

With Half the Work
Nine sprays—same nozzle—round or flat—coarse or fine—cover twice the foliage.
“Kant-Klog” Sprayer
Nozzle cleaned while working.
Spray starts or stops instantly. 10 styles. Write now for special offer.
Agents wanted.

ROCHESTER SPRAY PUMP CO.
207 Broadway Rochester, N. Y.

Hill's Evergreens Grow

Best for windbreaks. Protect crops and stock. Keep house and barn warmer—save fuel—save feed. Hill's evergreens are hardy, nursery-grown, well-rooted. Get Hill's free illustrated evergreen book and list of Great Bargain Offers, from \$4.50 up per Thousand. 56 years experience. World's largest growers. Write. D. HILL NURSERY CO., Inc. Evergreen 246 Cedar St., Dundee, Ills. Specialists.

GREIDER'S FINE CATALOGUE
and calendar of pure-bred poultry for 1914. Large, many pages of poultry facts, different breeds in natural colors. 70 varieties illustrated and described; incubators; brooders; low price of stock and eggs for hatching. A perfect guide to all poultry-raisers. Send 10¢ for this noted book.
B. H. GREIDER, Box 50, Rhea, Pa.

“The Doolittle Plan” of working out-apriaries is fully described in The Management of Out-apriaries by the well-known author, G. M. Doolittle, of New York.

This is the new title of “A Year’s Work in an Out-apriary” by the same author. This is the fourth revision of his work on this topic of management of outyards. If you haven’t a copy of former editions you should not fail to get this new 1913 edition, which is just off the press. Price 50 cts. postpaid.

Order now from the publishers.

The A. I. Root Co., Medina, O.

SPECIAL NOTICES

BY OUR BUSINESS MANAGER

NEW POWER PLANT.

As we go to press we are just starting our new compound Skinner engine, which is supposed to pay for itself in about two years in the saving in fuel. In fact, the makers have so much confidence in it that they contract to take their pay in monthly payments equaling the value of the fuel saved. We are already pretty well filled with orders, and expect to have one of the best seasons we ever had. New catalogs are out. If you have not received one, send a request for it.

BEESWAX WANTED.

We do not remember a year when the demand for beeswax has kept the price up through the fall as it has the past year. As we enter on the new year the demand is on the increase, and supplies seem to be scarce. We are offering a higher price than we have ever advertised before—32 cents cash \$4 in trade for average wax delivered here, with a premium for choice yellow of one to two cents. We are also prepared to work your wax into foundation. See advertisement on another page.

MIXED SWEET-CLOVER SEED.

We are prepared to offer a bargain in unhulled sweet-clover seed, if you can use the yellow biennial and the white mixed. Unless you plan a crop for seed there is no real objection to the mixture. In fact, it ought to be an advantage, as the yellow comes into bloom usually about two weeks earlier than the white. We can offer this seed in New York State, subject to previous sale, at \$1.80 for 10 lbs.; \$8.00 for 25 lbs.; \$11.00 per 100, or 500 lbs. for \$50.00.

The demand for seed continues keen; and the prospect is that we shall be compelled soon to mark up our prices.

Some are looking with more favor on the annual yellow as a soil-improver in connection with other field crops. It may be sown with oats or other grain in the spring; and if conditions are favorable it will make quite a growth, and may be plowed under after the main crop is harvested, and greatly improve the soil by adding nitrogen as well as humus. The seed is cheap, and it is worth trying.

Convention Notices

The Ohio State convention will be held here Feb. 12 and 13. Dr. Burton N. Gates, President of the National, will be here for three addresses. Other speakers of national reputation are expected to be present. Program of meeting will appear in next issue of GLEANINGS.

Athens, Ohio, Dec. 16.

W. A. MATHENY.

The thirty-third annual convention of the Colorado State Beekeepers' Association will be held at the Auditorium Hotel, Denver, Col., January 20, 21, 1914. The annual reduced rates during the livestock show will make it possible for beekeepers to take advantage of the half-fare and also attend the stock show, which will be open all the week.

The program has not been entirely arranged for, but we are to have some exhibits of interest to all bee-men.

WESLEY FOSTER, Sec.

Boulder, Col., Dec. 17.

The annual convention of the State Beekeepers' Association will be held at the Agricultural College, Jan. 30, 1914, under auspices Extension Division. Special rates over all Utah railroads.

An exhibit of bees and beekeeping appliances will be open to the beekeepers and other visiting farmers and housewives in the College Museum.

IMPORTANT MEETINGS FOR BEEKEEPERS.

Farmers' round-up and housekeepers' conference, Jan. 26 to Feb. 7. State poultrymen's convention, Jan. 29-31. State poultry show, Jan. 26-31. State dry-farmers' convention, Jan. 31. State dairymen's convention, Feb. 2. Utah Development League, Jan.

Program of South Dakota Beekeepers' Association Convention, at rest room, court-house, Vermillion, Jan. 21, 1914:

Greetings, 11:30 A. M.

AFTERNOON SESSION, 1:30 P. M.

Beekeeping for women Rhoda Carey
Bees on the farm G. W. Webster
Experiences of marketing honey W. P. Southworth
Best size of section and hive to adopt . . . R. A. Morgan
Question-box.

EVENING SESSION, 7:30 P. M.

President's annual address R. A. Morgan
Election of officers
Wintering bees J. Duffack
Production of comb honey F. A. Dahl
Production of extracted honey T. M. Goddard
Wax rendering E. G. Brown
Sweet clover as a forage plant T. H. Wadsworth
Question-box.

L. A. SYVERUD, Secretary.

The National Beekeepers' Association convention will be held in St. Louis, Feb. 17, 18, 19. The exact meeting-place, program, and entertainment will be announced in a subsequent issue. Concerning the program it may be announced that the foremost authorities in the country are being solicited for contributions, and it is assured that many of these will respond. The convention will be divided into sessions for business, and for the reading and discussion of apicultural subjects. At business sessions the delegates from the various affiliated associations throughout the country will prosecute the usual annual transactions. The general sessions for papers and discussions, it is hoped, will cover a series of special subjects, as, for instance, a short session on bee diseases and their treatment; a session on the apicultural conditions of various localities of the country. It is hoped to have a discussion of wintering, the growing queen industry, and to make a feature of the demonstrations and discussion of new inventions and manipulations. It is, furthermore, hoped that at least some of the lectures may be illustrated with lantern slides.

Can you not attend this convention? The sessions are open to all interested in the promotion of bee-keeping. Keep close watch of the beekeeping press for subsequent announcement. The undersigned would be grateful for suggestions and inquiries. What can you contribute to the convention?

BURTON N. GATES, President.
Amherst, Mass., Dec. 28.

The annual meeting of the New Jersey State Beekeepers' Association will be held at the Entomology Building, New Brunswick, N. J., January 21, 22, 1914.

Officers: C. H. Root, Red Bank, N. J., President; Joseph Horn, Westwood, N. J., 1st Vice-president; Harold Hornor, Mt. Holly, N. J., 2d Vice-president; W. E. House, Hampton, N. J., 3d Vice-president; E. G. Carr, New Egypt, N. J., Secretary-Treasurer.

JANUARY 21—10:30 A. M.

Reading of minutes. Report of Secretary-treasurer. Economical Increase, Harold Hornor, Mt. Holly. Question-box.

2 P. M.

Comb Honey Production, Wm. House, Ringoes; W. E. Robinson, Groveville; W. E. House, Hampton. The Bard foundation-fastener demonstrated. Discussion on the Crane comb-honey case. Election of delegate to meeting of State Board of Agriculture. Election of representative to National Beekeepers' Convention, St. Louis, Mo., Feb. 17, 1914. Question-box.

7:30 P. M.

Address of Welcome, Dr. Headlee, State Entomologist; "The Dollar-and-cent Side of Beekeeping," A. C. Miller, Providence, R. I. Question-box.

9:30 A. M.

"Fancy Extracted-honey Production," L. K. Cole, Stanton, "How I Produce Extracted Honey," Henry Bassett, Salem. "Two Essentials in Honey Production," Dr. Phillips, Washington, D. C. The steam-heated uncapping-knife and automatic reversible extractor will be demonstrated. Question-box.

No live beekeeper can afford to miss hearing Dr. Phillips and Mr. A. C. Miller.

PRIZES.

Mr. I. J. Stringham, 95 Park Place, New York, offers for best 10 lbs. comb honey, Langstroth on the Honeybee, and a year's subscription to American

Bee Journal. For best 10 lbs. extracted honey, the same.

W. T. Falconer Manufacturing Company, Falconer, N. Y., offers for second-best 10 lbs. comb honey, 5 lbs. light surplus foundation. For second-best 10 lbs. extracted honey, one Dewey foundation-fastener.

Dadant & Sons, Hamilton, Ill., offer for best 5 lbs. beeswax, 5 lbs. medium brood foundation. For second-best 5 lbs. beeswax, Langstroth on Honeybee. For best new aparian devices, 5 lbs. thin surplus foundation.

The Jefferson and St. Lawrence County Beekeepers' Societies will hold a joint meeting in the Chamber of Commerce rooms, Flower Building, Watertown, N. Y., Wednesday and Thursday, Jan. 21 and 22, 1914.

OFFICERS OF JEFFERSON COUNTY ASSOCIATION.

President, A. A. French; Vice-president, F. H. Loucks; Secretary and Treasurer, Hudson Shaver.

OFFICERS OF ST. LAWRENCE COUNTY ASSOCIATION.

President, F. C. Hutchins; Vice-president, C. Otto Enders; Secretary and Treasurer, Racine Thompson.

These meetings are held under the direction of the Bureau of Farmers' Institutes, New York State Department of Agriculture.

The following is the program:

WEDNESDAY, 10:30 A. M.

Address of Welcome, A. A. French.

Response, F. C. Hutchins.

Reports of officers and committees.

Call for unfinished business.

New business.

Paying dues.

Adjournment for dinner.

1:30 P. M.

Which is of the most importance—temperature or fresh air for wintering? Edgar Elethorpe, Hammond.

To emulate and promote the bee industry, Chas. J. Cady, Adams Center.

Rearing Good Queens, Roy Keet, Black River.

Is it desirable to keep bees in the shade? F. A. Miller, St. Lawrence.

How can the price of honey be improved to the producer? A. J. McCoy, Gouverneur.

Discussion; question-box; adjournment.

7:30 P. M.

Address of welcome, Mayor Isaac Breen.

The good that bees do for humanity, F. H. Loucks, Lowville.

What would you advise as side lines to beekeeping? Wm. Davis, Ogdensburg.

Arrangement of the apiary, Geo. B. Howe, Black River.

How can a beekeeper best improve his bees? Racine Thompson, DePeyster, N. Y.

Discussion; question-box, adjournment.

THURSDAY, 10 A. M.

What is the best method for a beekeeper to raise his own queens? C. O. Enders, Oswegatchie.

My experience with European foul brood, and how I got rid of it, Hudson Shaver, Perch River.

Wit and humor of the bee and the beekeeper, D. R. Hardy, Burrs Mills.

Marketing the honey crop, Ralph Hibbard, Evans Mills.

Which is the best for the beekeeper—comb honey, extracted, or both? A. R. Young, Rosalie.

Discussion; question-box; adjournment.

1:30 P. M.

Hive ventilation of bees in the cellar, F. C. Hutchins, Massena Springs.

How my bees produced 5000 lbs. of honey this season, Roy Keet, Black River.

Modern methods of caring for extracted honey, F. H. Loucks, Lowville.

The secret of securing a good crop of comb honey, A. A. French, Black River.

Profitable and unprofitable expenditures of labor in honey production, Geo. B. Howe, Black River.

Discussion, question-box.

Two or more speakers of the State Commission of Agriculture are expected.

Those who travel have always stories to tell of their experiences at the custom-houses. Irritating sometimes, these experiences are often amusing, especially when they are taken in the optimistic spirit of such a traveler as the president of the United Society of Christian Endeavor, who will describe his adventures in the next volume of *The Youth's Companion*.

This Washer Must Pay for Itself

A MAN tried to sell me a horse once. He said it was a fine horse, and had nothing the matter with it. I wanted a fine horse. But I didn't know any thing about horses much. And I didn't know the man very well either.

So I told him I wanted to try the horse for a month. He said "All right, but pay me first, and I'll give you back your money if the horse isn't all right."

I didn't like that. I was afraid the horse wasn't "all right," and that I might have to whistle for my money if I once parted with it. So I didn't buy the horse although I wanted it badly. Now this set me thinking.

You see I make Washing Machines—the "1900 Gravity" Washer.

And I said to myself, lots of people may think about my Washing Machine as I thought about

the horse, and about the man who owned it.

But I'd never know, because they wouldn't write and tell me. You see I sell my Washing Machines by mail. I have sold over half a million that way.

So, thought I, it is only fair enough to let people try my Washing Machines for a month, before they pay for them, just as I wanted to try the horse.

Now, I know what our "1900 Gravity" Washer will do. I know it will wash the clothes, without wearing or tearing them, in less than half the time they can be washed by hand or by any other machine.

I know it will wash a tub full of very dirty clothes in Six Minutes. I know no other machine ever invented can do that, without wearing out the clothes.

Our "1900 Gravity" Washer does the work so easy that a child can run it almost as well as a strong woman, and it doesn't wear the clothes, fray the edges, nor break buttons the way all other machines do.

It just drives soapy water clear through the fibers of the clothes like a force pump might.

So, said I to myself, I will do with my "1900 Gravity" Washer what I wanted the man to do with the horse. Only I won't wait for people to ask me. I'll offer first, and I'll make good the offer every time.

Let me send you a "1900 Gravity" Washer on a month's free trial. I'll pay the freight out of my own pocket, and if you don't want the machine after you've used it a month, I'll take it back and pay the freight too. Surely that is fair enough, isn't it?

Doesn't it prove that the "1900 Gravity" Washer must be all that I say it is?

And you can pay me out of what it saves for you. It will save its whole cost in a few months, in wear and tear on the clothes alone. And then it will save 50 cents to 75 cents a week over that in washwoman's wages. If you keep the machine after the month's trial, I'll let you pay for it out of what it saves you. If it saves you 60 cents a week, send me 50 cents a week till paid for. I'll take that cheerfully, and I'll wait for my money until the machine itself earns the balance.

Drop me a line to-day, and let me send you a book about the "1900 Gravity" Washer that washes clothes in six minutes.

Address me this way—H. L. Barker, 1127 Court Street, Binghamton, N. Y. If you live in Canada, address 1900 Washer Co., 355 Yonge St., Toronto, Ontario.



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As Southwestern distributors of ROOT'S BEEKEEPERS' SUPPLIES, we are very glad to make this first announcement of a special discount for early orders, accompanied by cash, to our beekeeping friends throughout this territory.

We give exactly the same discount that is granted by the manufacturers of these famous goods, and the prices in our special catalog are the same as their own. There is an extra saving for you in ordering from us—FREIGHT. Better give this your special attention before ordering from elsewhere.

THE CASH DISCOUNT ON EARLY ORDERS PLACED IN JANUARY IS 3 PER CENT.

This applies to every thing in the way of beekeepers' supplies except a few special articles. On large general orders we will allow the discount on some of the excepted articles, not exceeding ten to twenty per cent of the entire order.

REMEMBER WE MANUFACTURE THE FAMOUS WEED PROCESS COMB FOUNDATION.

We have a large demand for this product, and are turning out comb foundaion of the finest quality. Include what you will need for the opening of next season in your early order. Shipment may be held subject to your convenience if desired; but get your order in now and save 3 per cent.

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Hill and Drill
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Wheel Hoe,
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No. 4 Planet Jr.
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A capital implement for large scale gardening especially. It has steel frame, and complete seeding and cultivating attachments. The hoes run close to row without danger to leaves or roots. Two acres a day can be easily worked with this tool.

You need these scientific soil-tillers to save time, lighten labor, and get bigger crops from your farm and garden. Planet Jr. tools are backed by more than 40 years' experience. They range from \$2 to \$100, and are fully guaranteed.

This is a practical every day time, labor, and money saver. It combines in a single implement a capital seeder, an admirable single wheel hoe, furrower, wheel-cultivator, and a rapid and efficient wheel garden plow. Sows all garden seeds in drills, or in hills 4, 6, 8, 12, or 24 inches apart.



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The highest type of Single Wheel Hoe made. It is light, handy, and adapted to use by man, woman, or child. Has leaf guard for close work, and a durable steel frame. A most useful tool in the family garden that makes the work really a spare-moment pastime.

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The best-known cultivating implement made. It is so strongly built that it withstands incredible strain, yet it is light and easy to handle. Has new steel wheel—will not clog with stones or trash. Cultivates to any depth and adjusts to any width. Opens and closes furrow, and hoes right up to plants without injuring them.

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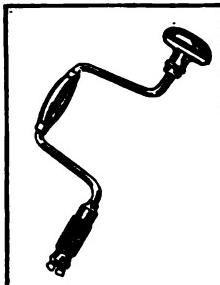
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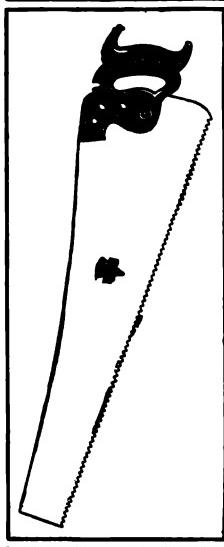
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and be sure to look for the Keen Kutter trade mark. That means first-rate materials, honest workmanship, rigid shop inspection and the full worth of your money. It means, too, that if you aren't satisfied with the way any Keen Kutter tool acts, any Keen Kutter dealer is authorized to return your money, whether you bought the tool from him or not.

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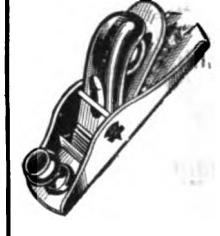
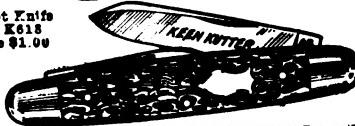
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the all-important tool of the most extensive honey producers of the world. This illustration shows the remarkable steel fire-grate which such men as Mr. France, Mr. Rauchfuss, the Dadants, and others say is the best on the market. The Smoke Engine grate has 881 holes for air and draft—equal to an opening two inches square. Buy the large sizes and be pleased. For sale at your dealers or direct.

Smoke Engine, 4-inch stove, wt. 1½ lbs.,	\$1.25
Doctor, 3½-inch stove, wt. 1¾ lbs.,	.85
Two larger sizes in copper, extra.	.50
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Having recently constructed an eight-car-capacity kiln, and having enlarged our power plant, we shall be able to handle your orders to the best advantage.

"Falcon" Supplies speak for themselves. Don't delay your order, but take advantage of this opportunity and let us ship the goods at your convenience.

Send for our foundation samples and Red Catalog, postpaid.

W. T. Falconer Manufacturing Company, Falconer, New York
Where the good beehives come from

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Central Ohio Honey Market

Finest quality WHITE-CLOVER honey a specialty. Producers who have not yet sold their crop should write. Those who have disposed of their crop and are in need of more for their trade, I shall be glad to supply at lowest prices consistent with highest quality and a fair margin of profit.

The correspondence of wholesale and retail dealers is especially solicited, as I am in position to furnish a grade of comb and extracted honey that will suit the most exacting trade. If interested, write for quotations and full description of the line.

Bee Supplies

Now is the best time to place your order for supplies for use next season. The prospect was never brighter, and there is every thing to gain and nothing to lose by ordering before the spring rush is on. Ask for revised price list and early-order discounts.

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It turns over an important "new leaf" beginning with the January number.

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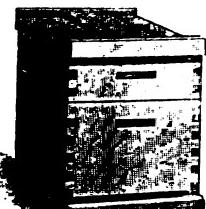
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"The Fun of Seeing Things," a department for young folks, edited by Edward F. Bigelow, succeeding his well-known work as editor of the "Nature and Science" department of "St. Nicholas" for more than fourteen years.

This new department will be really new. It will not be "schooly," not "nature study," not to induce parents and educators to say, "It is good for the children," but it will appeal directly to the young folks themselves and will help them to enjoy the natural objects that surround them. It will be true to its name.

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29 years' experience in making everything for the beekeeper. A large factory specially equipped for the purpose ensures goods of highest quality. . . . Write for our illustrated catalog and discounts today.

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HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

NATIONAL BEEKEEPERS' ASSOCIATION GRADING RULES

Adopted at Cincinnati, Feb. 13, 1913.

Sections of comb honey are to be graded: First, as to finish; second, as to color of honey; and third, as to weight. The sections of honey in any given case are to be so nearly alike in these three respects that any section shall be representative of the contents of the case.

I. FINISH:

1. *Extra Fancy*.—Sections to be evenly filled, comb firmly attached to the four sides, the sections to be free from propolis or other pronounced stain, combs and cappings white, and not more than six unsealed cells on either side.

2. *Fancy*.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white, and not more than six unsealed cells on either side exclusive of the outside row.

3. *No. 1*.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white to slightly off color, and not more than 40 unsealed cells, exclusive of the outside row.

4. *No. 2*.—Comb not projecting beyond the box, attached to the sides not less than two-thirds of the way around, and not more than 60 unsealed cells exclusive of the row adjacent to the box.

II. COLOR:

On the basis of color of the honey, comb honey is to be classified as: first, white; second, light amber; third, amber; and fourth, dark.

III. WEIGHT:

1. *Heavy*.—No section designated as heavy to weigh less than fourteen ounces.

2. *Medium*.—No section designated as medium to weigh less than twelve ounces.

3. *Light*.—No section designated as light to weigh less than ten ounces.

In describing honey, three words or symbols are to be used, the first being descriptive of the finish, the second of color, and the third of weight. As for example: Fancy, white, heavy (F.W-H); No. 1, amber, medium (1-A-M), etc. In this way any of the possible combinations of finish, color, and weight can be briefly described.

**JUST
OUT!**

New 1914 Catalog--"Everything for Bees"

Lay your plans for the new season now. Send for the 1914 Muth Catalog of Beekeepers' Supplies. It's just off the press. In it you will find full information about the remarkable MUTH SPECIAL Dovetailed Hives. Drop a postal card at once—sure!

THE FRED W. MUTH CO.

204 WALNUT STREET

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CINCINNATI, OHIO

P. S.—Ship us your old combs and cappings and let us render them for you. Our process extracts the last drop of wax from the slumgum. This means money for you. Write for full particulars.

CULL HONEY:

Cull honey shall consist of the following: Honey packed in soiled second-hand cases or that in badly stained or propolized sections; sections containing pollen, honey-dew honey, honey showing signs of granulation, poorly ripened, sour or "weeping" honey; sections with comb projecting beyond the box or well attached to the box less than two-thirds the distance around its inner surface; sections with more than 60 unsealed cells, exclusive of the row adjacent to the box; leaking, injured, or patched-up sections; sections weighing less than ten ounces.

NEW HONEY-GRADING RULES ADOPTED BY THE COLORADO STATE BEEKEEPERS' ASSOCIATION,
DECEMBER 13, 1911.

FANCY WHITE.—Sections to be well filled, comb firmly attached to all sides and evenly capped except the outside row next to the wood. Honey, combs, and cappings white, and not projecting beyond the wood; wood to be well cleaned; no sections in this grade to weigh less than 13 $\frac{1}{2}$ ounces.

No. 1.—Sections to be well filled, combs firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey white or very slightly off color. Combs not projecting beyond the wood; wood to be well cleaned; no section in this grade to weigh less than 13 $\frac{1}{2}$ ounces.

CHOICE.—Sections to be well filled; combs firmly attached; not projecting beyond the wood, and entirely capped, except the outside row next to the wood. Honey, comb, and cappings from white to amber, but not dark; wood to be well cleaned; no section in this grade to weigh less than 12 ounces.

No. 2.—This grade is composed of sections that are entirely capped, except row next to wood, weighing from ten to twelve ounces or more, also of such sections that weigh 12 ounces or more, and have not more than 50 uncapped cells all together, which must be filled. Combs and cappings from white to amber in color, but not dark; wood to be well cleaned.

EXTRACTED HONEY.—Must be thoroughly ripened, weigh 12 pounds per gallon. It must be well strained, and packed in new cans. It is classed as white, light amber, and amber.

STRAINED HONEY.—This is honey obtained from combs by all other means except the centrifugal extractors, and is classed as white, light amber, amber, and dark; it must be thoroughly ripened and well strained. It may be put up in cans that previously have contained honey.

BOSTON.—We quote fancy and No. 1 white comb honey at 15 to 16; fancy white extracted honey in 60-lb. cans, 11. Beeswax, 30.

Boston, Jan. 16.

BLAKE-LEE CO.

ZANESVILLE.—I quote fancy white comb, jobbing, 17 to 18; wholesale, 19 to 20; No. 1 white, jobbing, 16 to 17; wholesale, 18 to 19; extracted, 60-lb. cans, white, jobbing, 9 to 9 $\frac{1}{2}$; wholesale, 9 $\frac{1}{2}$ to 10 $\frac{1}{2}$; 60-lb. cans, light amber, jobbing, 6 $\frac{1}{2}$ to 7 $\frac{1}{2}$; wholesale, 8 to 8 $\frac{1}{2}$. For beeswax producers receive 30 to 32; selling price per 100 lbs., 40 cts. Prices remain firm, though the market is very quiet.

Zanesville, O., Jan. 16.

E. W. PEIRCE.

Honey reports continued on page 5.

SPECIAL DELIVERY

During this month we shall double our usual efforts in points of delivery and service. We carry nothing but the Root make, which insures the best quality of every thing. We sell at factory prices, thereby insuring a uniform rate to every one. The saving on transportation charges from Cincinnati to points south of us will mean quite an item to beekeepers in this territory. We are so located that we can make immediate shipment of any order the day it is received.

New 64-page Catalog

Our new 1914 catalog contains double the pages of former editions and requires extra postage. It is filled from cover to cover with complete lists of goods in every line to meet every requirement of beekeepers. If you haven't received a copy when you read this, be sure to ask for one. It will save you money.

New Features for 1914

Few radical changes have been made this season. It should be noted, however, that we will send out with regular hives, unless otherwise ordered, the metal telescopic or R cover with super cover underneath. The side rail for the bottom-board will be extra length so as to overcome the difficulty experienced by some last season. Improvements have been made in extractors. We shall carry a very heavy stock so that orders may be filled with our usual promptness. Write us your needs. Early-order discount this month 2 per cent.

C. H. W. Weber & Co.

2146 Central Avenue

Cincinnati, Ohio

Gleanings in Bee Culture

E. R. ROOT
Editor

A. I. ROOT
Editor Home Dept.

H. H. ROOT
Ass't Editor

J. T. CALVERT
Business Mgr.

Department Editors:—Dr. C. C. Miller, J. E. Crane, Louis H. Scholl, G. M. Doolittle, Wesley Foster, J. L. Byer, P. C. Chadwick.

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IDAHO FALLS.—We quote finest white extracted honey in square 60-lb. tins at 6½ to 7.

IDAHO HONEY-PRODUCERS' ASSOCIATION.

Idaho Falls, Jan. 19. F. C. BOWMAN, Sec.

BUFFALO.—The supply of honey is liberal. Demand for white comb is very slow; demand for both extracted and comb (buckwheat) very good. Fancy white comb honey, 16 to 17; No. 1 ditto, 15½ to 16; No. 2 ditto, 12 to 13; No. 1 buckwheat, 13 to 14; extracted white, 8½ to 9; dark, 6 to 7; beeswax, 28 to 30.

Buffalo, N. Y., Jan. 17. W. C. TOWNSEND.

DENVER.—Our local market is well supplied with honey, and our jobbing quotations are as follows: Strictly No. 1 white, per case of 24 sections, \$2.70; choice, \$2.57; No. 2, \$2.43; extracted white, 8 to 9 cts.; light amber, 7 to 7½. We are in the market for beeswax, and pay 30 cts. per lb. in cash, and 32 in trade, delivered here.

THE COLORADO HONEY-PRODUCERS' ASSOCIATION, Denver, Col., Jan. 20. FRANK RAUCHFUSS, Mgr.

KANSAS CITY.—The demand for both comb and extracted honey is very light, especially for comb. Receipts of extracted are light, but receipts of comb honey are large. We quote No. 1 white comb, 24 sections per case, \$2.60 to \$2.75; No. 2 ditto, \$2.40 to \$2.50; No. 1 amber ditto, \$2.75; No. 2 ditto, \$2.25 to \$2.50; extracted white, per lb., 8 to 8½; extracted amber, 7 to 8. Beeswax, per lb., 25 to 30.

C. C. CLEMONS PRODUCE CO.

Kansas City, Mo., Jan. 14.

ST. LOUIS.—Our local market is well supplied with honey, and trade has been somewhat quiet on account of mild winter. We are quoting to-day fancy white honey, 15 to 16; light amber, 14 to 15; amber, 12 to 13, and dark amber, 9 to 11. By the case, 24 combs to the case, fancy white brings \$3.25 to \$3.50; light amber, \$3.00 to \$3.25; amber, \$2.50 to \$2.75; dark and broken combs, less. Beeswax, 82½ for prime. Inferior and impure sells for less.

R. HARTMANN PRODUCE CO.

St. Louis, Mo., Jan. 19.

CHICAGO.—Sales have been very slow and unsatisfactory for the past thirty days, and there does not seem to be any encouragement in the present outlook. Stocks are heavy and prices are uncertain; for that reason it is difficult to give accurate figures. A No. 1 to fancy grades of comb are held around 15 cts. per lb.; but alfalfa mixed and sweet-clover grades are difficult to move at much lower prices. Fancy grades of white clover and basswood extracted honey sell at .8 to .9, according to quantity and other considerations; amber 7 to 8. Beeswax is steady at from 31 to 33, selling upon arrival.

Chicago, Jan. 17. R. A. BURNETT & CO.

NEW YORK.—Our market is decidedly dull, and the demand during the past six weeks has fallen off to a great extent—even more than in former years, notwithstanding the short crop of some grades. While comb honey is pretty well cleaned up, small shipments are yet coming in quite freely; and while fancy and No. 1 white are in fair demand, off grades, dark and mixed, are almost entirely neglected. We quote No. 1 and fancy white at 14 to 15; No. 2 white and light amber at 12 to 13; dark and mixed, 10 to 11. Prices on extracted remain about the same, with very little trade at this time. Beeswax is steady at from 32 to 33.

New York, Jan. 19. HILDEBETH & SEGELKEN.

CINCINNATI.—There is no demand for comb or extracted honey—a condition that is a general rule for this season of the year. However, this season it has assumed a peculiar condition owing to apparent big stocks of honey on hand, and the holders see fit to slash prices. Whether it will have any tendency to lower the value further than they now are, remains to be seen within the next 90 days, and for that reason we will not quote prices this month. Beeswax is in very good demand, and we are paying 32 cts. cash and 34 in trade for good average wax, and from 1 to 3 cents per lb. more for something in choice bright yellow, delivered here.

THE FRED W. MUTH CO.

Cincinnati, Ohio, Jan. 19.

Deposit your Savings
with

The SAVINGS
DEPOSIT BANK CO.
of MEDINA, O.

The Bank that pays 4%

Write for Information

A.T. SPITZER	E.R. ROOT	E.B. SPITZER
PRESIDENT	VICE-PRESIDENT	CASHIER

ASSETS OVER ONE MILLION DOLLARS

Are Your Bees Short of Stores?

We have candy in large paper pie-plates just right for late winter and early spring feeding. Write for prices.

We carry a full line of supplies at all times.

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182 Friend Street BOSTON, MASS.

THE A. I. ROOT COMPANY'S CANADIAN HOUSE

A Carload of Brand-new Goods

DADANT'S FOUNDATION
BEEs, QUEENS, HONEY, WAX

Write for a Catalog

THE CHAS. E. HOPPER COMPANY
105 Wright Avenue TORONTO, ONTARIO

This is the season for discounts on Bees and Bee Supplies

If you will send us a list of goods needed we will be pleased to quote you on them. Catalog free.

I. J. STRINGHAM, 105 PARK PLACE, NEW YORK
Apiares, Glen Cove, L. I.

BEE SUPPLIES Send your name for
in January. Dept. T, O. O. CLEMONS BEE SUPPLY CO.,
Kansas City, Mo.

Alsike - Clover - Seed

Small Red, Large Red, White, Yellow Sweet Clover; Alfalfa, Timothy, Blue Grass, Millet, Rape, etc. Good Seed Corn in varieties. Seed leaflet and apiary-supply catalog free.

F. A. SNELL, . . . Milledgeville, Illinois
Carroll County

The
BEST
Light



The problems of adequate illumination vanish when you install a "Best" Light system. More than 200 styles are pictured in our catalog—every one of them guaranteed to give a clear, radiant white light at lower cost than any other illumination you can use. Agents wanted.

THE BEST LIGHT CO.
300 East 8th St., Canton, O.

Gleanings in Bee Culture

DEVOTED TO HONEY, BEES, AND HOME INTERESTS.

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Established 1873.

CIRCULATION 35,000.

Issued semi-monthly.

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An Opportunity to Make an Independent
Living from a small cultivated area in
“The Land of Manatee”
On the Gulf Coast of Southern Florida

All the early vegetables, marketed at highest prices, are successfully grown—3 and 4 different crops per annum. A home in a delightful year-round climate. A young man paid \$125 for an acre of land this year, and spent another \$125 in clearing and cultivating it in tomatoes. The production was 550 baskets, which were sold at \$2.50 per basket; total gross production from a single crop on an acre of ground, \$1375. The same advantages and opportunities are open to you. Let us tell you in detail of the possibilities in this favored section. Ask for beautiful illustrated book, “Fruit and Vegetable Growing in Manatee County.”

J. A. PRIDE
General Industrial Agent
SEABOARD AIR LINE RAILWAY
Suite No. 376, Norfolk, Va.

RAIN OR SHINE



Stevenot's Weather Cottage foretells weather changes 8 to 24 hours in advance and prepares you for changes. This unique little instrument is carefully made, with thermometer, modeled stag head and starling in front of building and bird house on roof. Inside the house, illuminated by the side windows are shown colored views of Germany. This instrument is based on scientific principles and is very accurate in its prophecy. In bad weather the man with raised umbrella will come out, and when the weather is going to be fair the lady will appear in front of the house.

Size 7½ inches high. Every cottage fully guaranteed. Sent parcel post, prepaid to any address in the United States or Canada for \$1.00. Your money back at once if dissatisfied.

FRANK H. STEVENOT COMPANY, Dept. 6, Cooper Union, New York City.

BARNES'
Hand and Foot Power
MACHINERY

This cut represents our combined circular saw, which is made for beekeepers' use in the construction of their hives, sections, etc.

Machines on Trial

Send for illustrated catalog and prices. Address

W. F. & JOHN BARNES CO.,
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ROCKFORD, ILLINOIS.



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in each town to ride and exhibit sample 1914 model. Write for Special Offer. Finest \$10 to \$27 Guaranteed 1914 Models \$10 to \$27 with Coaster-Brakes and Puncture-Proof Tires.

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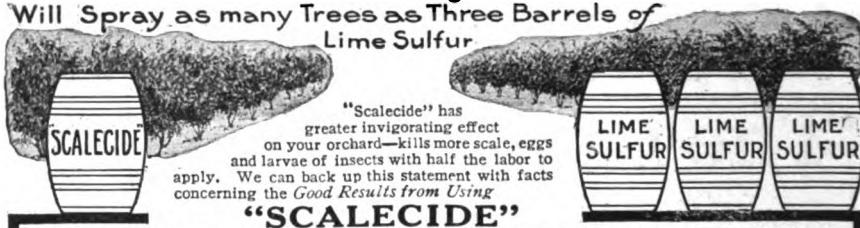
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BUY till you get our catalogue and offer. Write now.

MEAD CYCLE CO. Dept. G-113 CHICAGO

One Barrel of "Scalecide"

Will Spray as many Trees as Three Barrels of Lime Sulfur.



"Scalecide" has greater invigorating effect on your orchard—kills more scale, eggs and larvae of insects with half the labor to apply. We can back up this statement with facts concerning the *Good Results from Using "SCALECIDE"*

Send for our illustrated booklet—"Proof of The Pudding". Tells how "Scalecide" will positively destroy San Jose and Cottony Maple Scale, Pear Psylla, Leaf Roller, etc., without injury to the trees. Write today for this FREE book and also our booklet—"Spraying Simplified".

Our Service Department can furnish everything you need for the orchard at prices which save you money. Tell us your needs.

We are World Distributors for VREELAND'S "ELECTRO" SPRAY CHEMICALS and Arsenate of Lead Powder (33 per cent), which, used wet or dry, has no equal in strength or texture. Avoid imitations. B. G. PRATT CO., Mfg Chemists Dept. 6, 50 Church Street, New York City



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LIME
SULFUR

Dept. 6, 50 Church Street, New York City

PAINT WITHOUT OIL

Remarkable Discovery that Cuts Down the Cost of Paint □ Seventy-five Per Cent.

A Free Trial Package is Mailed to Every One Who Writes.



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When you order Bee Goods you want them "now." We are in the very heart of the Bee Section—no city with so good package-courier service—largest stock west of the Mississippi. Whenever possible orders shipped same day as received—more carefully packed than ordinary.

BLANKE'S BEE BOOK FREE—a catalog filled with helpful tips for either beginner or old timer. Write to-day before you need supplies.

Department 2

Blanke Mfg. & Supply Co.
St. Louis, Mo.

A. L. Rice, a prominent manufacturer of Adams, N. Y., has discovered a process of making a new kind of paint without the use of oil. He calls it Powdrpaint. It comes in the form of a dry powder and all that is required is cold water to make a paint weather-proof, fire-proof, and as durable as oil paint. It adheres to any surface, wood, stone, or brick. Spreads and looks like oil paint, and costs about one-fourth as much.

Write to Mr. A. L. Rice, Manufacturer, 8 North St., Adams, N. Y., and he will send you a free trial package, also color-card and full information showing you how you can save a good many dollars. Write to-day.



GIVEN TO EVERY BOY AND GIRL. We give a fine Eureka Camera and complete outfit, plates, chemicals, etc., with full instructions. Just send your name and address, we send you 24 papers Gold Eye Pictures. Sell 2 papers for 10¢, giving a third one free. When sold send us the 30¢ and the Camera and complete outfit is yours. Address GLOBE CO., Dept. 725, Greenville, Pa.

Know Before You Plant That Your Trees and Shrubs Will Bloom as You Expect

Shrewd people buy merchandise from established houses—houses that will be in business when they need service. Why should not a planter buy his Trees, Shrubs, Vines, Roses, Bulbs, and Seeds with the same precaution? How disappointing it is, when your

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192-page **FREE** Catalog **FREE** Write for it today. It's interesting and valuable.



THE STORRS & HARRISON CO., Box 239, Painesville, Ohio

Beeswax Wanted!

We Expect to Use
SEVENTY TONS

of beeswax during the next SIX MONTHS, and we have on hand less than twenty tons. We offer for good average wax, delivered at Medina, 32 cts. CASH, 34 cts. TRADE. If you have any good wax to sell write to us or ship it by freight. Send us shipping receipt, giving us gross weight also net weight shipped. Be sure to mark your shipment so we can identify it when received.

Beeswax Worked into Foundation

If you want your wax worked into foundation we are prepared to do this for you at prices equal to those made by other standard manufacturers. Write for price if interested.

The A. I. Root Co., Medina, Ohio

New Goods Arriving!

We are getting our stock for next season, and should be glad to have your order for any supplies you are to use next year. A folder, with new prices, will be mailed you on request. . .

The A. I. Root Co., Syracuse, N. Y.

"If goods are wanted quick, send to Pouder."

ESTABLISHED 1869

Bee Supplies

Bees in this zone are in winter quarters with a bounteous supply of natural winter stores, and I believe that no other feature is quite so important as regards safe wintering as an abundance of wholesome stores. The fall flow was so profuse that in some instances brood-rearing was curtailed early on account of crowded condition, and some strong colonies were weakened on this account. A few losses may result from this condition. The white clover in this zone is in good condition with the exception of a few counties which suffered from drouth. Conditions for ensuing year are very encouraging for both beekeeper and the supply-dealer. The last year will be remembered as a most excellent honey year, and with it came the best demand for honey that has ever been known. I am receiving more inquiries and orders for Root Bee Supplies than ever before during midwinter, and some discounts for early orders are still available. The policy of this house as to prompt shipments and a fair and satisfactory deal will be maintained as heretofore, and I hope to deal with you in a way that will justify your recommending my goods to your neighbor.

WALTER S. POUDER:—*I am more than pleased with your promptness. Kentuckians are generally credited as being quick with a gun, but I do not think the fastest in that line can equal the speed a certain Indiana man uses in shooting out the goods. Those paper honey-jars are certainly the trick for local trade.*

Louisville, Ky.

Yours truly,
OTTO F. RECKTENWALD.

I should like to place in your hands my catalog with 1914 revised prices on bee supplies. Or send a list of your requirements, and let me see if I can not create a saving for you by quoting an estimate. This will place you under no obligations, and it will be one of my pleasures.

I can use more beeswax, and am now paying 31 cents cash or 33 cents in exchange for goods.

Walter S. Pouder
873 Mass. Ave., Indianapolis, Indiana

QUALITY HILL QUEENS

Learn what Quality Hill Queens mean in greater honey yields for you. Send a postal for the booklet, "A Story of Success." Then you'll know why we have been able to supply few more than our re-orders. Dozens of keekeepers buy only our queens. This is because we guarantee every Quality Hill Queen to have been reared under conditions to warrant your success. Goldens are our specialty, but we breed the darker strains too. Only the highest yielders rear our drones, and the breeders are carefully selected. You have a right to know all about the queens you buy. Do you? Write that postal now. Make us prove our word.

References: Any Plainfield business firm listed with Dun or Bradstreet.
Five per cent discount on all dozen orders received before March 1.

KENNITH HAWKINS,

PLAINFIELD, ILLINOIS

Special Sale of Honey

WE HAVE produced a fine lot of extracted honey this season from our eight out-yards. In addition to our own honey, we have purchased many other lots from prominent producers, and are now able to offer for prompt shipment the following flavors of extracted honey:

ALFALFA,	ORANGE,
SWEET CLOVER,	LIGHT AMBER,
WHITE CLOVER,	DARK AMBER,
BASSWOOD,	BUCKWHEAT.

Several of the last cars of comb honey which were shipped us in 1913 contained a large number of cases of broken comb honey, caused by the cars being badly handled in transit.

We are obliged to regrade all shipments; and in every case where we found broken combs we melted them up. All the combs that are slightly cracked or have the cappings broken, we put into other cases; and these cases of cracked comb honey, which is practically all produced from white clover, we are offering at a special low price and at prices which we believe will certainly be of interest to you; and we know that, if you will send us in an order, you will be pleased with the honey at the prices we are asking for it.

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Gleanings in Bee Culture

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NO. 3

Editorial

OHIO BEEKEEPERS, TAKE NOTICE.

We wish to call the attention of Ohio beekeepers to the program (as given on page 119 of this issue) of the convention to be held at Athens, February 12 and 13. We know that no effort has been spared to make this meeting a great success. E. R. Root will be in Florida at that time, but H. H. Root expects to be present.

RAINS IN CALIFORNIA.

JUST as we go to press we have the following from Mr. Chadwick, our correspondent in California:

We have just had a four-inch rain, and our prospects are much brightened in consequence. Mendelson says that we shall get the largest honey crop in years, the winter having been open and warm.

The morning papers to-day, Jan. 27, are telling of a terrible rainstorm yesterday in parts of Southern California—the worst ever known. We doubt whether so much water falling at once will do as much good as it would if it came more slowly; but certainly from the beekeepers' standpoint the outlook is the most promising of any season in recent years.

BEES AND POPPIES.

FOR the past few months there has appeared in the newspapers in various forms a story of bees becoming stupefied by working on poppy blossoms. The various items have included the names of different parties, and certain details have been so obviously exaggerated that we have thus far given the matter very little thought. During a recent conversation with A. H. Berno, of Mansfield, Ohio, he said that last season on several different occasions when his bees were bringing in honey rapidly he found them working on poppies; and each time, after about a day, he said he could see a large number of bees lying about on the ground near the poppies, unable to fly, which bees, however, would finally recover and generally get back to the hives by night. He cut down the poppies, and in about a week the bees were working again as usual.

Mr. Berno is the florist at the Ohio State Reformatory, and he has had considerable experience with bees as well as with flowers. If others of our readers have had opportunities for making similar observations we should be glad to hear from them.

PROF. A. J. COOK VINDICATED.

WHEN an honest and capable man tries to do his duty fairly and impartially, in a public office, especially if he does not favor some chronic office-seekers, he is pretty sure of inviting a fusilade of attacks. Prof. Cook, ever since he has taken the position of State Horticulturist of California, has had criticisms of one form and another hurled at him at different times. Matters finally came to a culmination recently, during which the opposition called a hearing before the Governor. Not a single charge was proven true. Prof. Cook was thoroughly vindicated on every point.

Our readers will be glad to know this, because Prof. Cook has been so well and so favorably known for so many years back by the entire beekeeping world.

LESS WATER USED IN MAKING HARD CANDY.

THE following note from C. H. Howard, Boston, Mass., came in too late for insertion elsewhere in this issue, and we thought best, therefore, to give it here as some might like to try the plan that he suggests in making candy for use late this winter.

In your recipe for making hard candy you say, "Into a dish of hot water on the stove pour an equal amount of sugar, stirring constantly." I have made hard candy for bee-feeding for years, and do as you say, with this difference: I use one part water to six parts of sugar, and usually boil from five to ten minutes. I think you will find it quite a saving of time if you try this amount of water.

We tried using less water than the amount stated in the directions in our January 1st issue, but we had difficulty in getting all the sugar dissolved at once. If any sugar remains undissolved by the time boiling commences, the candy is sure to crystallize. It is true that it takes a little longer time to evaporate this extra amount of water, but

it seemed to us the easier way. Possibly others might think differently. At any rate, we should be glad to have reports from any who may try both ways.

A COURSE IN APICULTURE AT THE IOWA STATE AGRICULTURAL COLLEGE.

In keeping with many of the other progressive States, Iowa is to have this spring a course in beekeeping in connection with the State Agricultural College at Ames. This course is to be an eminently practical one, and the students are to be given daily lectures upon different phases of beekeeping, no text-book being used. In this the plan will be similar to the one carried on at some of the other institutions where bee-keeping is taught. Briefly, the course will consist of one lecture and one laboratory period of three hours per week for half a year. Among other things will be taken up a study of the anatomy, physiology, development, and habits of the bee, including practice in general apiary methods, the handling of bees and their products, the races of bees, diseases, etc.

COVER PICTURE.

THE view shown on the cover gives a glimpse of some beautiful apples hanging in the trees just before picking time. No amount of careful blending of printer's ink can bring out the rich coloring, and we are glad that we made no attempt to imitate the natural tints. This picture, and the ones on pages 95 and 96 were taken last fall in the fifty-acre orchard of Van Rensselaer & Southam (see article by Mr. Van Rensselaer on page 94). Very close to this orchard is situated our Stone Hill yard, a part of which is shown on the cover of our July 15th issue. The spraying outfit used was also shown on the cover of our June 15th issue. Messrs. Van Rensselaer & Southam are enthusiastic over the value of the bees as pollinators, and they want even more bees, if possible, next season.

Is it at all strange that the most progressive and successful fruit-men do not need to be told of the value of bees as pollinators, nor of the bad effect on the fruit itself of spraying in full bloom?

BEES AND GRAPES.

DURING September and October we usually hear of one or more instances of trouble arising between beekeepers and grape-growers because of the supposed injury that the bees do to the grapes in biting or stinging holes through the skins of the grapes and sucking the juice. Of course, it has been

shown many times that bees can not do this; that birds are the real culprits, after all, and that the bees merely suck the juice from the fruit that has burst because of being overripe, or that has been punctured by birds, and is, therefore, unmarketable. To get the grape-grower to believe this when he sees the bees with his own eyes working on the juice of the grape, is rather difficult.

There is some difference of opinion as to whether bees pollenate the blossoms of grapevines. Our Mr. Marchant says he has seen bees working on the blossoms in the South, and he believes that bees do cross-pollenate grapevines.

In our own apiary we have very large crops of grapes on the vines growing at each stand; but we confess that we ourselves have no absolute proof to offer one way or the other. We should be glad to hear from any of our readers who have such proof; for if it can be shown that the bees pollenate the blossoms of the grapes as they do of so many other fruits, this fact will go a long way toward overcoming the prejudice against the bees that exists in the minds of some of the grape-growers.

MISBRANDING AND ADULTERATION OF SPRAY-ING MIXTURES.

IN this special number on bees and fruit it may be pertinent to call attention to the fact that fruit-growers, besides having to be extremely careful as to the time for spraying, must also pay strict attention to the quality of the solution which they use for spraying. In these days of adulteration it is a favorite practice on the part of many sensational writers seeking for a little more notoriety to call every thing adulterated, even comb honey, as our readers know. However, the United States Department of Agriculture in a recent statement for the press has called attention to certain cases of adulteration and misbranding that the fruit-growers among our readers would do well to notice. Because of our lack of space we are unable to use the whole statement in question. The following is the introduction:

GOVERNMENT WINS INSECTICIDE AND FUNGICIDE CASES.

WASHINGTON, D. C.—The Government has recently secured judgments against a number of concerns for violations of the Insecticide Act. These involve the misbranding or adulteration of insect-powders, moth-balls, roach-exterminators, and various other insecticides and fungicides shipped in interstate commerce. Following is a résumé of each case:

We can not use the résumé of each case, nor is it necessary here to mention all of the cases listed. The following, however, being instances of adulteration or misbranding of preparations used for spraying will be of interest:

"Persian Insect Powder," shipped by Lewy Chemical Co., New York; "Orchard Brand Atomic Sulphur Fungicide," "Orchard Brand Arsenite Zinc," "Orchard Brand Atomic Sulphur Combined with Arsenate of Lead," "Bordeaux Arsenate of Lead Mixture," "Bordeaux Mixture," all shipped by Thomsen Chemical Co., Baltimore, Md.; "Kerosene Oil Emulsion," "Lime, Sulphur, and Salt," or "Horieum," "French Bordeaux Mixture," the last three shipped by Benjamin Hammond, Fishkill-on-Hudson, N. Y.; and "Lead Arsenate," shipped by Fred L. Lavanburg, New York.

A careful reading of the article by "A New England Veteran," page 91, will convince almost any one, we think, that spraying is often greatly overdone; or else it is done injudiciously by persons who are following unreliable directions, or, worse still, following no directions at all. If spraying is done in a haphazard manner, perhaps it is just as well that the solution used be adulterated.

Up-to-date fruit-growers and beekeepers will do well to pay especial attention to the emphatic statement by Prof. H. A. Surface, in the extract on page 93, copied from the *Practical Farmer*. We wish that all the farm papers would publish such a statement. It would have more weight than the same thing in a bee journal, because the bee journal is supposed to be prejudiced in favor of the bees.

"INVESTIGATIONS PERTAINING TO TEXAS BEEKEEPING."

THE above is the title of Bulletin No. 158, by Wilmon Newell, State Entomologist, and F. B. Paddock, Assistant Entomologist, and by William Harper Dean, formerly Assistant Entomologist at College Station, Texas. Seldom do we run across a bulletin from any station that contains more interesting and valuable matter on the subject of bees than does this one. Mr. Wilmon Newell, State Entomologist, is an enthusiastic beekeeper. Unfortunately, he is not in position where he can devote all his time and energies to the subject of bees; nevertheless, he and his assistant have given us some valuable experiments, all of which are recorded and given in the bulletin mentioned above.

DOES IT PAY TO DIVIDE IN RUNNING FOR COMB HONEY?

Wilmon Newell, unlike many experts, sees not only the scientific but the practical side of bee culture. In the two first pages of this bulletin he gives the results of some experiments regarding swarm control that are exceedingly valuable—val-

uable because he has gone after the work from the standpoint of the trained scientist. One of the problems he has tackled is, "Which is the more profitable—to prevent a colony from swarming, and thus conserve its strength, or divide it into two colonies early in the season and have both of them gather honey?" He admits that the consensus of opinion is in favor of the colony not divided. He selected a number of colonies—one set he did not divide, and the other set he divided, giving a part of them queen-cells and a part laying queens at the time of the division. The colonies that had the laying queens had the advantage. He says: "It seems a safe conclusion that, had the ones which were provided with ripe queen-cells at the time of division been provided with laying queens instead, their production would have been at least as great as the others. The conclusion is justified that the purchase of queens for these colonies, even at a price of one dollar each, would have been profitable, inasmuch as this would have increased the average production of these colonies by 30 lbs. of extracted honey." The average from colonies that were divided had 114 lbs. of surplus; that is to say, the combined surplus from the two after division was 114 lbs.

In the apiaries where the colonies were *not divided*, which either did not swarm or which were prevented from doing so, gave an average of 127 lbs. surplus per colony, or 13 lbs. more than the ones that were divided. "But," says Mr. Newell, "we obtained from divided colonies not only a surplus of 114 lbs., but a colony of bees," which he puts at the very low price of \$3.00. Looking at it this way, and figuring the honey at 7 cents, the difference in favor of division was \$2.09.

METHODS FOR CONTROLLING SWARMING.

With regard to the methods for preventing swarming, he found that increasing the size of the brood-chamber delayed it in some cases and stopped it in others altogether. Increasing the super room did no good. Shaking on foundation stopped the swarming and gave an average of 137 lbs. each. Colonies which did not swarm gave an average of 121 lbs. "One might be inclined," he says, "from a consideration of these figures, to suppose that the shaking treatment had actually increased the production. But such a conclusion would not be correct." The shaken colonies had the advantage in that they were stronger in the first place than the colonies that did not swarm.

THE LIFE HISTORY OF THE BEE MOTH.

Perhaps the most striking thing in this

bulletin is the life history and control of the bee moth, by F. B. Paddock. This is the most elaborate and complete treatment on the subject that we have ever seen; and while we believe that the author unduly magnifies the bee moth as a serious enemy (and it doubtless is such among the box-hive beekeepers of Texas), he has nevertheless given us a story that supplies many gaps in our knowledge of this pest. Its life history is illustrated by numerous fine half-tone engravings. It would be almost impossible to give a review of this magnificent piece of work, because it should be read entire in order to be understood. It is so well done that we shall beg the privilege of making it over into one of our booklets when the supply of this bulletin has been exhausted.

This treatise on bee moth is followed by a critical study of Texas beekeeping, by W. H. Dean. Some of the figures are interesting in showing the importance of the bee-keeping industry in Texas. In spite of what Mr. Dean says to the contrary one would be surprised to find so large a number of beekeepers who keep black bees in old box hives. This fact will explain why the bee moth is really a serious enemy to some beekeepers in Texas. Mr. Dean summarizes his report as follows:

The average production of honey, all grades, per colony in Texas for the season of 1911, as secured from reports of 2733 beekeepers, was 26 pounds. Were the production from box hives eliminated from this estimate, the average would be much higher in spite of adverse seasonal influences.

Bulk comb honey ("chunk honey") is the chief production of the Texas apiary. It follows extracted honey and sections, the latter form being comparatively scarce.

In the data expressing the views of Texas beekeepers as to whether apiculture is profitable as a side line rather than as a profession it is interesting to note that the most extensive beekeepers maintain that the industry is *unprofitable* unless conducted on a large scale, and that those who claim the industry is profitable *only as a side line* are almost invariably beekeepers who follow the calling on the corresponding scale.

DISTURBING BEES IN WINTER.

IN the *American Bee Journal* for December is an article from G. M. Doolittle on this subject. In a general way he advises against it; but toward the latter part of his article he gives some testimony that goes to show that it may not be altogether an unmitigated evil. We quote:

I have many times proven that such disadvantage was overbalanced by the advantage gained along other lines. Let me give one or two illustrations:

When I had been keeping bees some two or three years a farmer living two miles distant advertised 27 colonies for sale in box hives at \$5.00 each. This was considered a big price at the time, but, like any beginner, I was anxious for more bees, so I went to see them. He kindly consented to let me look them over, which I did by carefully tipping the hives on

the benches they occupied, as they were wintering outdoors. I found that most of them were light in stores, and that there was only one colony in the lot that I considered worth the \$5.00. I offered \$5.00 for this one, which he took. I wrapped it in one of the sheets I had brought along, put it on the opposite side of the cutter seat which I occupied, turning it bottom side up, and drove home in the twilight of a cold evening in the fore part of January. I well remember how the bees roared, as the sleighing was poor, and how I inwardly censured myself for not leaving them where they were until spring, as "such a disturbance as this" would surely cause them to die. When they got quiet, about 10 o'clock that night, I carried them to the cellar where the rest of the bees were, took the sheet off, and set them in their place beside the others, still bottom side up, as in the early 70's we always wintered bees in box hives that way.

No more of the farmer's bees were sold, and imagine my surprise to find on going there one day the last of April, that all but two of the 26 colonies left were dead, while the one I had disturbed "nigh unto death" was one of the best colonies I had. It gave a good swarm that year and stored 129 pounds of "box honey."

After our great loss of bees during one winter in the latter 80's, a winter extremely cold and long drawn out, the claim was made that the bees "froze to death." I did not believe it, but claimed that no chance to fly during five months of "long confinement" was the cause. The argument "waxed so hot" that one afternoon the next winter, when the mercury stood at 12 degrees below zero, I took a colony of bees, and, with cover and bottom-board removed, suspended the hive a foot above the ground, leaving it thus for 36 hours, during which time the mercury got as low as 28 degrees below. This colony was then put on its old stand again, and came out in May fully equal to any of its fellows which had no disturbance above the usual winter's elements.

In conclusion, allow me to say that, if there is any thing in this article that would seem to show that the disturbing of bees in winter does no harm, I protest in advance against the assumption that I advise such disturbance. I do not so advise except where some gain is expected.

We do not know but that we agree with Mr. Doolittle that the average person, perhaps, should avoid disturbing his bees in midwinter. It is a good deal like a case of spreading brood in the spring, and, we may say, spring feeding. But there are many things that the average beekeeper should not attempt, but which an expert can practice to advantage. We do not say that all experts under all conditions can disturb bees in their cellars and get an increase of 25 and even 50 per cent; but there are some who can do it. We have accomplished it two different seasons, and have succeeded nicely with one lot of bees in our cellars thus far.

Mr. Doolittle, in the second paragraph from the last, above quoted, shows that the one colony that was disturbed was the *only one* out of the whole lot during that severe winter that came out in good condition, while the *undisturbed* colonies nearly all died. Now, then, what an expert should do is to discover the conditions under which an increase can be secured in the cellar.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

L. W. CROVATT thinks, p. 27, that his experience would convince advocates of unpainted hives "that paint is valuable in the preservation of wood." Friend Crovatt, I think they agree with you that paint is good for the hive, but they think it isn't good for the bees.

I SUPPOSE Italians are not alike in the matter of capping. At any rate, my Italians have hardly tallied with what Bro. Doolittle says about their dark capping, p. 9. With a few exceptions there has hardly been a noticeable difference in the capping of my Italians and blacks or hybrids.

DRONE JUICE FOR UNITING.—In *Rhein. Bzg.* it is recommended to mash up drone brood, thin the juice with a little water, and then sprinkle bees with it to make them unite peaceably. [We should be afraid that, under some conditions, this would result in fearful robbing. Moreover, mashed-up brood of any kind is liable to cause stinging also. We certainly would not advise beginners to try it if they do not want to get into trouble.—ED.]

J. E. CRANE, if you mean that four-foot board to be used for the whole apiary, p. 879, it seems to me your record will be crowded. If you mean one for each colony it must take quite a lumber-pile. You say glue makes leaves of a book stick together. I've glue galore, and the leaves of my books are daubed with both glue and honey, yet it makes no serious trouble in the space of 50 years or so. How it might be as a permanent practice I can't say.

WILLIAM TANNER has my thanks for a package of genuine German lebkuchen made in Nuremberg. I'm sending you a share, Mr. Editor. In Germany these lebkuchen associate honey with Christmas in a way not known in this country. [The samples came duly to hand, and they are certainly very fine. It is to be regretted that in this country we do not have this German custom of eating this honey-cake lebkuchen during Christmas. The recipe for lebkuchen will be found on page 33 of our booklet of honey recipes.—ED.]

I'D LIKE to know what Mel Pritchard looks like. Is that he, p. 28? [Yes. His picture appears on pages 27, 28, 29, also on page 892 of our issue for Dec. 15. On page 888 appears a picture of our Mr. Marchant, who is now in Florida with our 300 colonies. Mr. Ray, another one of our apiarists, appears on page 891. Mr. Mel Pritchard

makes smokers when he can not work with the bees. Mr. Ray goes out selling honey, and Mr. Marchant is taking care of our southern apiary. We always endeavor to keep our bee-men busy the year round.—ED.]

IN Germany "early breeders" are disapproved, colonies that start brood-rearing later being considered more successful. It begins to look, p. 3, that you were reversing that rule at Medina. [Here is a case where locality would have a bearing early in the spring in Northern Ohio. In the cellar especially, we should say if brood-rearing can start by the first of January, and be maintained from then on till the bees are taken out of the cellar, it will mean stronger and better colonies. Of course, one has to guard against starvation. Unless the bees are supplied with candy or unsealed stores, they may not do much brood-rearing.—ED.]

LAYING WORKERS.—As reported in *Ill. Monatsblätter*, Silvester Hirsch unqueened a normal colony, took away its unsealed brood, and gave it from time to time frames of *sealed brood*. During all this time, of course, the bees could rear no queen, neither did laying workers appear. Then he gave a comb with brood four or five days old, but nothing younger. The bees immediately started queen-cells, but destroyed them before maturity. The worker brood proceeded to maturity, and, shortly after the emergence of the young workers, eggs were found, two to ten in a cell—of course from laying workers. He thinks extra food produced laying workers. Whether they can always be explained in this way is a question.

I HAVE always believed that a worker never stings a queen, for if it did why should a queen live for hours when balled? One day last summer, while I held a queen in my hand a worker jumped upon it, and in a jiffy that queen was a dead queen. But I still think that a balled queen is rarely stung, if ever, perhaps because in the ball it is impossible for a worker to get into proper position to sting. [There have been so many reports that the bees have actually stung a queen to death inside of a ball, and we have had so many cases of it in our own yards, that we should say that death by suffocation was the exception and not the rule. It will be remembered when this matter came up years ago, we stated that we had repeatedly had queens stung in the thorax when pulled out of a ball of bees.—ED.]

Notes from Canada

J. L. BYER, Mt. Joy, Ont.

A mild winter so far, here in Ontario. At this date, Jan. 10, we have not yet had zero weather. But there is lots of time for real cold weather yet, as from now till Feb. 15 is the time we usually get our most severe snaps. Although the weather is mild, yet the air is not warm enough to stir the bees up any, and from all appearances they are wintering nicely so far.

• • •

DECEMBER BROOD-REARING A DOUBTFUL DESIRABILITY.

Breed-rearing is going on nicely in December, page 3, Jan. 1. May be all right for Medina, but none of it if we can avoid such a thing for us in this locality. If those bees could not be taken out of the cellar till some time late in April, as might happen here in Ontario, I feel that so much December brood-rearing would spell disaster. Although the editor tells of weak colonies going into the cellar and coming out strong in the spring, I must say I am very skeptical about such a thing being possible in ordinary practice, to say the least. If there is any thing I feel sure about, it is that brood-rearing, especially out of season, is very hard on the vitality of the bees raising said brood, and that is the reason I have always been opposed to the policy of early spring feeding for stimulative purposes.

• • •

OUTDOOR WINTERING MORE IN VOGUE IN ONTARIO.

Judging from what one reads in GLEANINGS lately, the indoor method of wintering seems to be popular around Medina, O. This seems strange to us chaps away north here in Ontario, as the present tendency is more toward outdoor wintering all the time, and I suppose the climate of Ohio is much milder than with us—indeed, from the very fact that we are so much further north we no doubt have much colder weather than they have down there. This fall I have received letters from a number of beekeepers who are north and east of me, and where cellar wintering is mostly practiced, the writers declaring their intention of trying the outdoor plan next season. While I have in every case advised caution in changing from a plan that has given fair satisfaction to that of a system in which they have had no experience, yet I believe that the outdoor plan can be safely followed in many localities where it is commonly thought to be unsafe to try to winter outdoors. We have

370 colonies wintering outside exactly 100 miles straight north of Toronto; and while this is but our second winter in that section, I am not worrying much as to the outcome.

• • •

BEES AND FRUIT.

This is an alluring combination that will have a tendency to make many city dwellers anxious to take a try at the "back to the land" policy. In a small way, fruit-growing goes nicely with commercial beekeeping; but unless competent help can be obtained, the specialist beekeeper is better to have just enough of the smaller fruit for his own use. They come in at the same time as the honey harvest; and as many of us could say from experience, we don't feel much like picking fruit for market when the bees are rushing us good and hard.

Late apples, pears, etc., come on at a time when they can be handled better by a bee-keeper; but then the most of the commercial beekeepers do not have a large acreage of land to farm, so this line is out of the question. However, "bees and fruit" appeals strongly to this scribbler, and some day I hope to be able to settle down with one apiary and have the time and pleasure of reveling among all the choicest kinds of fruits that our climate will stand for. This is one of my dreams. Whether I shall ever be in position to realize its fulfillment or not is another question.

• • •

BOATS FOR TRAVELING TO BEE-YARDS.

What Mr. Scholl has to say in the Dec. 15th issue about Grant Anderson, of Texas, simply reaffirms what I stated some time ago on the subject of motor boats. Without a doubt, if I were starting in beekeeping again, and could find some locality suitable for honey production that had a navigable stream running through the country, that is the place I would choose to establish a series of out-apiaries. As mentioned before, we have a gasoline-launch at the yard north of Toronto, 100 miles, and it is certainly the ideal way to get around nicely and cheaply. Unfortunately the river is not navigable far enough for us to put any more apiaries on its banks; but the boat has demonstrated its usefulness along the lines indicated by Mr. Scholl. No tire troubles annoy us, and no bad roads stop you at any time in the season when working with the bees. Then again, the launch is not so expensive to buy or maintain as is an automobile. But I am sorry to say we have few locations around

us with the necessary navigable waters, so I shall have to use the means of traveling at my command, and be satisfied.

* * *

FIGHTING AMONG BEES OF THE SAME COLONY.

A. C. Miller is, in my opinion, quite a keen observer. I say this in all sincerity. In just the same spirit, I can not help expressing the opinion that he sometimes makes claims to things as being facts when common practice seems to say there is nothing in his contentions. Writing in the *American Bee Journal* on the theme of queen introduction, odor, etc., he says that, when some colonies have combs with adhering bees taken from them, if these combs with the bees adhering are stood outside the hive for ten minutes or so, against trees, buildings, etc., when returned to the hive again there will be violent fighting among the lot united again, so that a quarter or more of the colony will be destroyed. Now, I don't pretend to be much of an observer; but I don't believe this can be possible and not be noticed by men handling hundreds of colonies for years. In some old systems we used to have of finding queens in populous colonies for purposes of dividing for making increase, etc., often have we had the combs separated for much longer than ten minutes, and never once can I recall seeing a "scrap" such as Mr. Miller refers to. Of course, friend Miller says "some" colonies, so perhaps he has something out of the ordinary. But at present I am inclined to think he has stated very emphatically something that will be hard to prove to be correct in actual practice.

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BROOD-REARING IN SEPTEMBER AND OCTOBER.

"Only young queens, thirty days, or younger, will lay during the months of September and October in the Northern States," p. 777, Nov. 1. Isn't that putting it a little strong? Any way, if it is true of the Northern States, it is not the case in Ontario, still further north. At the Cashel yard I had 16 colonies in single-walled hives—increase made in July, all queens being of that month's rearing. They were left very late—too late, in fact, before being transferred to double-walled hives. October 29 they were lifted into the winter hives, each comb handled singly. Fourteen of the colonies had brood hatching in two frames, while two had three frames each. Of course the frames were not filled with brood, as the colonies had been fed heavily for winter. A few of the colonies had too much space with no honey, to suit me; and when brood was hatched they were given some more winter stores. In no case did I observe un-

sealed larvae; but as I handled the frames rather rapidly I may have overlooked any if it was present. But the comparatively large amount of hatching brood was *prima facie evidence* that these queens had been laying all through the first week of October, and they were at least three months old.

* * *

BEES GETTING INTO THE WRONG HIVES.

That bees in an apiary mix up a great deal is a well-known fact; but it is only when unusual conditions prevail that I have a chance to see how much mixing is really done, and to get an idea of how any disease that might be carried by bees would soon spread all through an entire apiary. At the Cashel apiary the bees are nearly all Carniolan and their crosses, only a very few pure Italians being in the yard. In the row furthest west, which contains about 25 colonies, there is one hive of pure golden Italians, the workers being about as solid yellow as any I have ever seen. It is needless to say these bees are very conspicuous when mixed with other colonies of dark bees, and I was much surprised during the past season to see how these goldens have mixed up with their neighbors. For at least 30 feet on each side of the hive they come from, golden bees may be found in all colonies; and while some are present in the row back of the one they are in, not nearly as many show up as in the hives in the same row. On one side of this hive its neighbor *hive* is exactly the same in color, and I should judge that about one quarter of the inmates are golden. On the opposite side of the hive the next neighbor is of a different color, and very few goldens are mixed with them. Still further away on the same side as the different-colored hive, the next one is of the same color as the one with golden bees, and in this hive the yellow fellows show up very plentifully. This would seem to show that the young bees are attracted by the same-colored hive, as they certainly have not gone into the dark hives near them to any great extent. The colony of goldens does not seem to have so many dark bees, so they have not gained any by their indiscriminate mixing with their neighbors, and it looks as though they are not as good home-finders as the dark bees. I remember G. B. Howe telling me that there was always a much greater loss in mating among Italians than with the darker races; and from my experience of the past few years I am ready to endorse that idea, as I continually find a much greater loss among Italians in cases of supersEDURE, etc., than is the case with the Carniolans and other dark bees.

Beekeeping in California

P. C. CHADWICK, Redlands, Cal.

SELLING HONEY THE SAME WAY THAT ORANGES ARE SOLD.

This will not reach its readers until after the meeting on market at Los Angeles is past history, and I have not felt that it was my business to attend the meeting, as I am not on the committee; but I have thought many times, and still think, the only logical way to handle this marketing business would be on the lines on which the orange business is handled. This plan could be followed out successfully if properly managed. Not only would the beekeeper be saved the profits of a middleman or two, but the buyer would get the honey at a figure that would let it reach the retailer and ultimately the consumer at a reasonable figure. The orange-marketing system as followed in California to-day is one of the most sane and satisfactory of any system of marketing of an agricultural product. I might profitably give a synopsis of the workings of the California orange pool, and explain the advantages.

There are really several pools in operation at some of the packing-houses at the same time. For instance, we first have the Christmas pool. This includes all of the fruit picked and shipped for the Christmas trade, and closes about Dec. 10 as a rule. All growers who put fruit in the pool receive the same for their fruit of the grade they furnish. Then there is the season's pools, and pools of various lengths during the season. It is the season's pool of which I will speak principally, for it will serve my purpose best in comparison. The holiday fruit is, as a rule, not included in the season's pool, but all of the remainder of the shipping season is included which runs over a period for the navels from Jan. 1st to near the first of June, varying a little according to the season. The fruit is hauled into the packing-houses and weighed, set aside, and the boxes marked. When they are ready to pass over the grader, an account is kept of the amount of the different grades as well as the culls. These records are compiled from day to day as the fruit of the individual comes in until all of his fruit has passed over the grader. At the end of this period the entire amount is added, so many of such and such a grade, and so many culls. The great advantage in the season's pool is that the grower receives for his fruit exactly what every one else in the pool receives, or an average for the entire season. If the market happens to be bad in New

York or Chicago for a week or so, and the price runs down at those points, the grower need have no fear of his fruit being sold cheap on that market, for after his fruit is packed it loses its identity, and no one knows or cares where it goes, and the result is that no one man gets all of the high prices nor all of the low, but the average for the season is figured on the entire amount, as so much per box, and the grower gets the average on the number of boxes he furnished for the season. When the fruit is packed the packers will advance a certain amount on the fruit shipped.

This plan could be followed in handling our honey without any great outlay of capital. Honey in the warehouse, covered with insurance, is considered gilt-edge security by our banks. There could be a central selling agency from which all of this business could be handled, and a pool agreement signed for the season. When I had, say, 50 or 100 cases of honey stored I could take a warehouse receipt for it, get it insured, and forward it to headquarters; the manager could go direct to the bank, present the receipt and borrow on it, which in turn could be mailed to me in the form of a draft or check. This, at the end of the season, would be deducted from my returns for the season. An inspector could be put on the road to travel and check up the amount of each producer of the grade his honey would be classed under. If, for instance, there were ten beekeepers in Redlands who had honey stored, it could be inspected, graded, and reported to the selling agency as to the amount of the different grades. The selling agency could in turn sell a car of a certain grade and order it loaded and forwarded to a certain point. The beekeeper always needs money *right away*, and in this way could be satisfied, and yet help to hold the crop directly in the hands of our own agency. This would eliminate also the habit of buyers traveling through the country, paying a difference in prices ranging as high as two cents for the same grade of honey in the same locality from different producers.

I know this could be done if the beekeepers were ready to back the agency, and would put the honey market in the hands of the beekeepers instead of allowing the buyers to place arbitrary prices on our crops.

I have written something on this line previously, but desired to enter a little more into details at this time.

Beekeeping Among the Rockies

WESLEY FOSTER, Boulder, Col.

IS THE SUPPLY LIKELY TO BECOME GREATER THAN THE DEMAND?

Boulder County produced over three hundred thousand pounds of honey the past season—that is, ten carloads, and all comb honey. One of the smallest counties in Colorado produced twice the comb honey that a city like St. Louis can consume in a year. Forty beekeepers produced all the comb honey that two million people eat. There is something wrong, and conditions must be changed, or we shall see worse ahead in honey-marketing. When a State like Colorado produces enough comb honey to supply twenty cities like Kansas City with their supply, consumable production and overproduction are drawn on pretty close lines. Western bee-men must shortly bestir themselves in the line of educating to honey consumption. They are now paying heavily for their blindness to the narrowness of the market for comb honey. A bumper crop will put us in bad shape every year it comes.

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HEAVY SNOWFALL IN COLORADO.

Northern Colorado has had the heaviest snowfall in the writer's seventeen years' residence in the State. All together more than 40 inches of snow fell, completely covering all hives. Concern for the safety of the bees was immediately felt by the beekeepers, as the snow was very heavy and wet. Some began at once to shovel out the hives, opening the entrances by digging a trench along in front of the rows of hives. Others, through lack of experience, shoveled out the hives and set them on top of the snow. A large proportion of the bee-men, however, left their colonies covered up, as it was found that the warmth of the clusters had melted the snow away from the four sides fully eight inches. Fear, however, was felt that, when the snow began to melt, it would form a slush at the entrance, and freeze at night, closing the entrance and smothering the bees. The writer shoveled his hives out by throwing the snow back over the tops of the hives, leaving a trench clear to the ground along in front of the entrances. In this way the hives have the protection of the snow on the remaining three sides and the top. The entrances can be watched, and any danger of freezing quickly remedied. However, we have had

several warm days which have melted the snow close to the entrances nearly all away, so that danger is now practically past.

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ALFALFA PROSPECTS FOR THE COMING SEASON.

The precipitation for 1913 was nearly 19 inches, or 4 inches above normal. This was caused by the big snow late in November and early in December. Abundant water for irrigation is assured, and we hope the present good prospects will continue.

Alfalfa is our main dependence for honey. The fall rains put all the clovers in prime condition, and the heavy snow has protected the clover since winter came. The ground is not yet frozen, January 3, and it is not probable that the snow will be gone for another month. Alfalfa is injured more by winter and spring freezing than in any other way. The snow so far has prevented winter-killing, and the usual winter pasturing has not been done. The late spring freezes are the most serious injury that can come to the alfalfa; but these will be less destructive as the hardier varieties are more generally grown. It has been demonstrated that the deep-green alfalfa will stand much more freezing without injury than the light-green varieties. With the selection of better varieties, and their more general cultivation, we may expect more uniform crops of alfalfa honey every year.

The varieties of alfalfa that the beekeepers and farmers may well enthuse over are the Grimm and Baltic varieties. They have proven superior in hardiness, tonnage, and seed production. The southern varieties which originally were introduced into South America from Spain, and then brought north, make up the bulk of our commercial varieties now grown.

There is another important characteristic of the Grimm and Baltic varieties: They begin blooming before getting full growth. Fully ten days to two weeks of honey-gathering is provided for the bees before the alfalfa is ready at the earliest to cut. It is reasonable to suppose that varieties heavier in seed production are more valuable for the honey-bee, and this is another point where the northern varieties excel.

May the time soon come, as it undoubtedly will, when the hardiest of the northern varieties will be universally grown. As selection goes on, it will not be long before the hardiest varieties will be still further improved.

Conversations with Doolittle

At Borodino, New York.

CONTRACTION OF THE BROOD-NEST.

"In an old paper I read that much more honey can be obtained when the brood-nest is contracted than where the bees are allowed to have their whole brood-nest to work in as they please. If contraction is profitable, I want to make my dummies this winter."

Much depends upon what contraction is used for, and when it is used. The advocates of an eight-frame Langstroth hive use this size of hive for the purpose of securing an early rush of bees into the sections. They consider this the best way of getting a larger yield of section honey from white clover and basswood, as with this small hive the bees have little chance to store any of this honey in the brood-combs where very prolific queens are used, the brood from such a queen (and the necessary pollen needed for this brood) keeping the combs of the brood-chamber filled so that, where any honey of any amount is stored, such must go into the sections.

Some of our most successful apiarists of the past have claimed that a hive, even smaller than the eight-frame L. hive, gives still better results, and so have used dummies to take the place of one or two of the outside frames, thus using a six or seven frame brood-nest. They take these dummies out after the white-honey flow so that the bees can fill the frames, which now take the place of the dummies, with fall or dark honey for their winter stores. However, such contraction, where a colony has a good queen, is liable to bring on swarming; and when the fever is once contracted it is hard to control, the prospects for a good yield of honey often fading away through the continued efforts to swarm, unless the colony is shaken or some other manipulation used, either to draw off a part or all of the working force from their brood, or take a part of the brood away.

On the other hand, with an ordinary or poor queen a gain can be made at the commencement of the white-honey flow by using a dummy for every frame not occupied wholly or in part with brood. Otherwise the combs not having brood in them will be filled with honey, the queen still further crowded down, resulting, as a rule, with little or no honey in the sections.

The advocates of a ten-frame Langstroth or larger hive are quite sure that all contraction of the brood-chamber can only result in a smaller crop of section honey, reasoning that, according to their views and

experience, any contraction is a most unwise course to pursue. In the first place they claim that we need to raise all the bees possible before the opening of the main harvest; that we must have an abundance of these workers or the harvest will be in vain, and to rear these workers there must be plenty of available cells. Second: In a hive we need all of the cells which a good queen will keep full of brood, and enough other cells for the storing of pollen and the needed daily allowance of honey that is necessary for an abundant supply to stimulate the whole household to its fullest degree. Then, when the coming harvest finds these combs all filled with brood, pollen, and honey, there is nothing to be gained in taking out some of these combs and putting in dummies; for if the brood-nest is full when the honey comes, the surplus must go into the sections.

Then there are others using large hives who claim, where the season is poor up to within a week or so of the expected harvest, thus allowing several of the outside combs to be empty of any thing, that the best means of getting the bees into the sections, with the first flow of white honey, is to feed an inferior honey until these empty combs are filled the same as they would be had the season been good, thereby placing them in a better condition than would be possible by using dummies.

Then contraction is practiced and advocated by some of our most practical bee-keepers using a ten-frame L. hive, which is, the hiving of the large swarms sent out from these large hives on six or seven frames, using dummies to fill out the rest of the hive; and in a locality where the surplus white honey is gathered in a short period of from two to four weeks, this is generally a profitable mode of procedure. Especially is this the case where the flow from white clover and basswood is followed by a dearth of honey for a month or so before the flow from buckwheat or fall flowers begins. Under such conditions it often happens that one of these large colonies will get profitably at work in one, two, and sometimes three supers of sections, when, all at once, out will come a large swarm. If they are returned, more likely than not the bees will keep on attempting to swarm till the harvest is over, resulting in scarcely a section of marketable honey. By hiving this large swarm in a contracted hive on the old stand, transferring the supers to the newly hived

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General Correspondence

HELP! WHOLESALE SPRAYING OF BLOSSOMS CAUSING WIDE-Spread DISASTER IN EASTERN MASSACHUSETTS

BY A NEW ENGLAND VETERAN

It was with great pleasure and satisfaction that the writer read of the forthcoming "bee and fruit" number of *GLEANINGS*—not only from the anticipation of the enjoyment of reading something good—we have learned to expect that—but there comes the belief that the powerful influence of this widely read magazine may relieve the present situation in Eastern Massachusetts which has already gone far to destroy the beekeeping industry and interest of Essex, and, to a considerable extent, of other counties. That the matter is of vital and immediate importance to the gardener and horticulturist is obvious.

In the matter of disease, while realizing fully the seriousness and the difficulties which beset both inspector and owner, the writer is optimistic, and from experience believes that in time it may not only be controlled, but, by eliminating the careless and ignorant beekeeper, raise the gentle craft to a higher and more satisfactory plane.

For some thirty years bees have been to me at first a study and recreation, then my occupation, and have brought very satisfactory returns.

Although surrounded by salt meadows and hard-wood forest-land, the fact that we are in the "apple belt," and that our farms are well tilled, has made the flow of nectar sufficient to give reasonable profits, and the aroma and flavor of our honey is such that there is no difficulty in selling locally all we can produce. In my home yard a sale of 25 swarms and a trifle over half a ton of comb honey has been a fair summer's work; but it is neither unfair nor exaggerated to say that, for several years, the authorities have taxed my bees in April and destroyed them in May. My crop last year was 42 lbs. of honey—no swarms; and after heavy feeding, and the purchase of many queens, the apiary is reduced in value one half below spring count and appraisal.

With the advent of the gypsy and brown-tail moths there came the covering of the face of nature with, first, Paris green, of which two-edged-tool people had a wholesome and well-grounded fear; but later, with the arsenate of lead, of which they seem to have no fear at all; probably because, although it is quite as dangerous, and in some

ways even more deadly, it was free from the evil reputation of Paris green, and was to most people a new substance—merely an "insecticide." It now sells at five cents a pound, and is to be found in the barns and sheds of most people who own trees or cultivate gardens.

Frankly admitting, as I do, the absolute necessity of its use, it is still a good thing to remember that it is a very powerful cumulative metallic poison, but very imperfectly soluble in the water with which it is applied; and, once exposed, is practically indestructible as a poison, although it may undergo some unimportant chemical changes by oxidation. Its value is in its ability to kill!

Let me be plainly understood that the beekeeper is, or should be, the first to acknowledge that, where these pests have appeared in any considerable number, the only course is to spray; but unless done at the proper time, and intelligently, it will defeat its own purpose. In this I find the men at the head, "the men higher up," are entirely with me. The ignorant employer, the farmer who does not know what he is doing, or, worse yet, does not care, or who is working on the absurd theory that filling the blossom with poison will kill the codling moth, not knowing that this moth takes no food of any kind, are the ones who have practically destroyed beekeeping and the wild bees in this locality.

You may have more patience to listen to my sermon if I set down here something of the damage done last spring to the bees under my personal care and observation, other than my own.

One yard of ten colonies in excellent condition, just beginning work in the supers, reduced by the second week in July to two nuclei. These were inspected, and pronounced free from disease. They had during the summer a loss of thirteen queens. Neither care nor expense was spared in the effort to save them.

Another apiary of six strong colonies was reduced to five weak; no swarms nor harvest. Two small apiaries were entirely wiped out. A market gardener, reduced from five to two; an apiary of three reduced to one nucleus. A yard of five reduced to

two, and here every thing was done to save them, expense not being considered. A yard of seven was cut to three, this being an especially interesting case, as they developed two mild cases of European foul brood, giving positive evidence that a case of foul brood properly treated is of less injury than "spraying in bloom." This list could be extended, covering my work in both Essex and Norfolk counties. Of all the bees under my care or advice, only two lots did any satisfactory work. One colony was kept in a cucumber-house until the spraying in bloom had passed, returned a very handsome profit, and gave two swarms which went into the winter nearly as strong as the parent colony. Another yard of four, on a large estate where the spraying was controlled, and both bees and fruit protected, increased to six and gave some 200 lbs. of fancy comb honey. Under normal conditions this is a good locality, and not greatly troubled by disease.

To consider this question fairly and from all sides, one should bear in mind that the cutting out and killing of most of the willows under the belief that they promote the increase of the gypsy moth has deprived the bees of their early pollen; and hence, unless artificial pollen or pollen substitutes are supplied, the bees do not build up early enough to get the apple-bloom honey into the supers. This works out as of much greater importance than one would think. Also the cutting and burning of all roadside shrubs and bushes to destroy the moths supposed to be distributed by automobiles takes away in the aggregate a large amount of nectar, miles of elderberry, sumac, goldenrod, asters, etc.

The filling of a "ripe" apple-blossom with a solution of arsenic may not be the most healthful treatment for the blossom; but I am a beekeeper, and will not attempt to discuss botanical matters.

To say nothing of the money loss, it is not pleasant to see the yard covered with little bunches of bees quivering in the agony of arsenical poison, for arsenate of lead is "slow and sure," and the torture may continue for hours. A neighbor came in haste to ask what was the matter, for his onion-bed was, as he expressed it, "covered" with dead and dying bees.

The loss is not by the beekeeper alone, but the entire community is damaged, as shown by the fact that a large strawberry-field a short half-mile from my yard failed to fruit, although blossoming freely. The owner, an expert at the business, declares that, as my bees were practically the only ones available, their destruction caused his

loss, which he estimates at \$200, and it was to him a very serious matter.

Many who have enjoyed cultivating gardens are giving them up, as they depend on the bee for their early cucumbers and squash. The practical extermination of the bumble-bee has been the chief factor in raising the price of red clover from 12½ to 45 cents per lb., and farmers no longer buy. Surely the loss of this valuable forage plant is not to be ignored. In spraying, especially with an engine of five to ten horse power (town machine), and in reaching tall elms and other shade trees, a wide area is covered, both around and beneath the tree; therefore much clover, both white and red, is filled, as the blossom is well adapted to receive and hold the poison. In this case the nectar serves to carry the poison; but my observation and experience convince me that the chief damage is by pollen, which soaks up and retains the arsenic; hence the slow building-up of a poisoned colony. The nitrogenous fool as stored up in the cells kills both old and young.

Of this very serious aspect of the case I have observations and experiments, but will not take space to give them here. A thing difficult to prove is that queens receive poison directly from the honey-sac of the worker, either as food or drink; but I am convinced the very great mortality among queens following spraying in bloom can best be explained that way.

Do not think the writer wishes to minimize the danger or damage of the moth pest. Eight wood lots lying in four towns, and all, so far as any future profit is concerned, absolutely ruined by the moths, are quite enough to convince him that we face a "condition and not a theory," but if we are to use a powerful poison by the ton—and three tons per year will hardly supply this small town to spray its highways and a part only of its orchards—let us use it intelligently: and as that is enough to kill all the inhabitants in the State, with a ton or two left over, why not use it carefully?

Is there need to say this? Well, judge for yourself. A year or two ago the person in charge of the spraying in this section assured me that arsenate of lead, which he termed, with a considerable degree of accuracy, "arsenic of lead," would "not hurt any thing that breathed through the mouth." This might be a valuable bit of information for the doctors who condemn "mouth breathing," and at any rate it showed his profound knowledge of respiratory processes.

Last spring the owner of a valuable horse which was drawing a part of the spraying outfit offered, if I would, as he expressed it,

"put up fifty dollars," to feed a pound of the poison to the horse. I was assured by other employees that, where their dinners had been wet down and accidentally "soaked" by the spray, they took no harm, and "would as lief eat the stuff as not." "It killed my bees," said one, "but it was only one swarm, and this is a pretty good job."

I was assured a few days ago that forcing the poison into the blossom "gave a much better color to the fruit;" and I was told, but can not vouch for the fact, that a certain large orchard was sprayed on the mature or nearly mature fruit to preserve the color and prevent any skin fungus.

Few realize the danger of a cumulative poison; but the progress can be observed on the song bird or the toad that eats the dying larvæ—if an insectivorous bird or a toad is left to die next summer. There may be a few, but they are mostly gone.

It should be noted that the poison is quite attractive to the bee, either because of a sweetness in this form of lead, or, as some believe, by the mixture of an adhesive like the "molasses" from the sugar-beet manufacture, which, as a waste product, is very cheap and effective.

This arsenate is extremely adhesive; and if spread upon the fully developed leaf it will remain effective for the fall crop of brown-tails; but I know an old nurseryman who says he does not like to have "the lungs of his trees" clogged up all summer, and asks, "Why not spray when the leaves are small, kill the larvæ when they also are small, and have done less damage; then let the leaf and fruit develop?" That sounds sensible to me; but he is past 80, and so, probably, is wrong.

It is unavoidable that some poison be taken into the hive from the foliage, espe-

cially as wet up by dew, rain, and rarely by honey-dew! but that is a loss the beekeeper should bear patiently. No one is to be blamed; and the loss, as compared with that resulting from spraying in bloom, is trivial, although where large areas of forest land are sprayed it will destroy the bees in the immediate vicinity.

Late spraying is also destructive to the various parasites and predatory insects which would, could their numbers be sufficiently increased, keep both gypsy and brown-tail in check. This part of the question is sufficiently important to be discussed in a paper by itself, and by a more competent person than I.

In reviewing this article I am convinced that I have not put this very serious matter too strongly, but, rather, that I have not expressed it forcibly enough; neither have I touched upon the loss of domestic animals by the careless and excessive use of the poison, nor upon the injury to the new growth and more easily injured parts of the trees and plants which it is intended to protect.

The United States Department of Agriculture, our very efficient State Board, the Agricultural College, and many officers of the Gypsy-moth Commission and State Forestry, are doing all they can to spread information and explain "safe and sane methods." Even the dealers in the poisons print (in some cases) warnings not to use in bloom; but still the evil increases, and only yesterday I was told by a man who had planned to set a rather large orchard in the spring that he had abandoned the idea, for, as he expressed it, "They have killed my bees, and won't let me keep any more, and I can't fertilize my blossoms by hand."

NEVER SPRAY FRUIT-TREES WHEN IN BLOOM

An Extract from the Practical Farmer

[The following article, coming as it does from the *Practical Farmer*, a paper not directly interested in bees, has all the more weight. Notice that the emphatic reply is from our old friend Prof. H. A. Surface.—Ed.]

A fruit-grower, who should by this time know better, writes to State Zoologist Surface, Harrisburg, and asks: "What kind of spray is best to use when peach-trees are in bloom?" Prof. Surface is anxious to have the substance of his reply reach every person who may even be interested in the least in the subject of spraying. He says that it should be "proclaimed from the housetops and written in the schoolrooms." The reply is emphatic, and based upon years of experience and study. It is as follows:

"I note with interest that you make inquiry concerning the kind of spray to use while the trees are in bloom. Again I hasten to say that you are decidedly wrong. Please get it out of your head now and for ever, for your own sake and that of your crop as well as for the bees, that no trees, shrubs, bushes, or vines of any kind should ever be sprayed while in bloom. Please tell this to your neighbors. Please tell it to the editors of all the papers. Proclaim it from the housetops. Let everybody learn that, to

spray a tree while in bloom, is liable not only to injure the fruit and thus help to destroy the crop, but also kills the bees and other insects that are absolutely essential in carrying pollen from fruit to fruit, and thus help fertilize the blossoms and insure a crop.

"If there is any one thing against which there should be definite and emphatic legislation in this State at the present time it is the ignorant and absurd practice of a few persons who yet appear to spray while in bloom. Please help us to educate the people against this practice. Education as practical and rational as this would do much more than legislation, as growers, if educated on this point, would understand it is greatly to their disadvantage to spray while in bloom. This fact should be placed before each schoolteacher, and kept on the walls of each schoolroom of the State. Let us make it strong. Tell every schoolteacher in your county to write on the blackboard in capitals: 'Never spray while in bloom.'

"Another reason for not spraying while in bloom is that there is no need of it. There are no pests that must or should be killed or prevented at this time. It will not do any-

where near the amount of good that it would to spray before the blossoms appear, and again after they fall. Before the blossoms open, spray with the boiled lime-sulphur solution, either home-made or commercial, boiling one pound of lime and two pounds of sulphur in one gallon of water for one hour, and dilute this with about six or seven times its bulk of water, and spray the trees thoroughly and before the blossoms open. About the time the leaf buds are swelling is the best time. This is good for all kinds of trees, shrubs, and bushes. After the brown husks of corollas fall from around your peaches and plums use this same preparation, but ten times as much water as you would at the other time; and to every fifty gallons of the extremely dilute preparation add two pounds of arsenate of lead, and spray again. The first spraying here mentioned is to kill the San Jose scale and certain other insects and plant-disease germs. The second spraying is for the curculio that makes wormy fruits, and when used on pome fruits, or apple, pear, and quince, it is for the codling moth and certain other insects and diseases."

REDEEMING BY CAREFUL PRUNING AND SPRAYING, A BADLY NEGLECTED APPLE-ORCHARD OF SOME 50 ACRES

BY J. L. VAN RENSSELAER

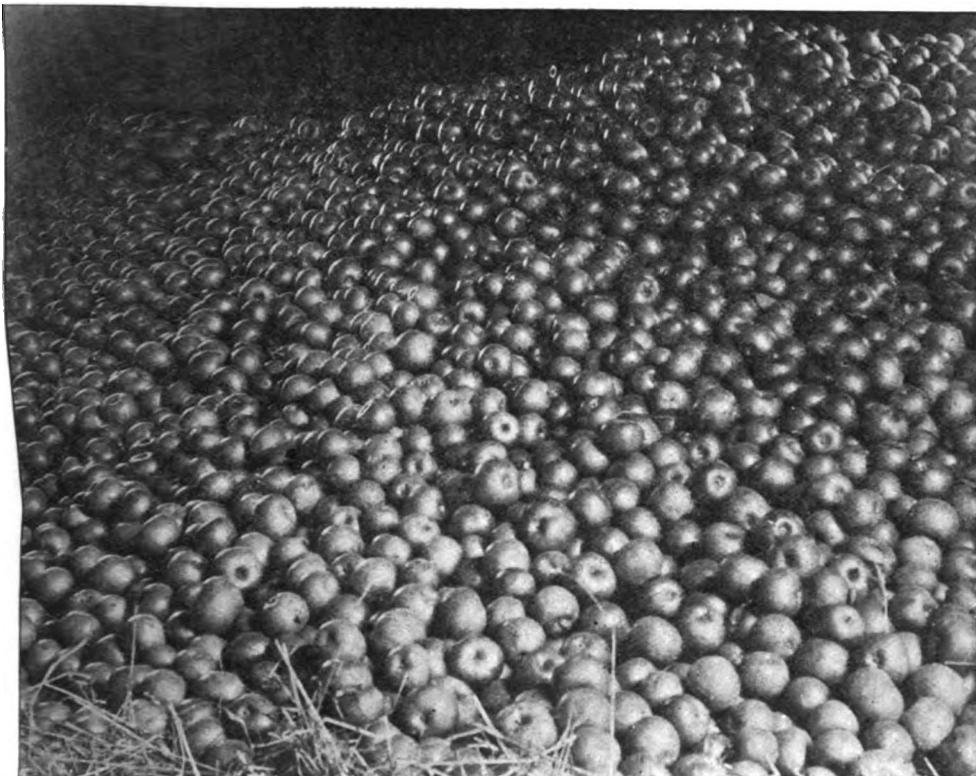
That Ohio is equal to and perhaps even better adapted for the raising of apples than are Oregon and other western States, has been thoroughly demonstrated this fall by W. H. Southam and myself. Early in the spring of 1913 we rented what is commonly known as the Wm. Bennett farm, just south of Stone Hill, in Brunswick, Medina Co., O. The farm consists of 200 acres with approximately 55 acres of orchard with 1400 apple trees. The farm was leased for five years of Mrs. Frank Isham, 47 Beersford Road, Cleveland, O., with the privilege of buying at the expiration of the lease. We took possession of the farm in January, 1913, and immediately set about pruning and trimming the badly neglected trees until we had the entire 55 acres of orchard in the best of shape, with all the dead and diseased limbs removed and burned before the warm weather of the spring arrived.

The orchard was in a worn-out, run-down condition, and for years had borne but a scanty crop of wormy and ill-shaped fruit; but this fall, under careful management, thousands of bushels of perfect fruit have been harvested.

The first spraying was done with a lime-and-sulphur solution while the buds were dormant. The second was done when the buds began showing pink, early in the spring, with $3\frac{1}{2}$ pounds of arsenate of lead, to $1\frac{1}{4}$ gallons of lime and sulphur to 50 gallons of water. The third and practically the most important spraying was done when the petals showed first signs of falling; and the fourth followed within ten days after the third. The fifth commenced July 1. The same formula was used for the last four complete sprayings. As a result of careful work the pickers found on an average but one wormy apple in a bushel of all apples harvested.

One year ago, 25 acres of this orchard had almost no leaves, and it has been years since this portion has had any apples at all. By these regular sprayings this same orchard had perfect foliage, and practically every tree in the orchard was very heavily loaded with perfect fruit.

The orchard presented one of the most beautiful sights imaginable, with the hundreds of trees, and their branches bending to the ground, heavily loaded with beautifully colored fruit. There are trees of al-



A pile of 500 bushels of perfectly formed apples—not an ill-shaped one to be found. Intelligent spraying and perfect pollination by the bees, responsible.

most all of the old standard varieties, without a poor variety among the 1400 trees.

It required about six weeks of continual work on the part of the staff of pickers to harvest the enormous crop of fruit. Tents were erected, and the pickers had a jolly time camping out, which added spice as the work was being accomplished. The results have been a revelation to farmers for miles around, and the orchard is attracting State-wide attention.

Fifty swarms of bees were placed in the orchard by The A. I. Root Co., which greatly aided in pollinating the blossoms. We find the bees very beneficial to our crop, and we advise each fruit-grower to secure bees to aid them in this great work.

We have proven conclusively that the apple-orchards in Ohio have long been neglected, and that the Buckeye State is wonderfully adapted for the raising of apples which will rank with the best in the country.

NO FRUIT SETS IF THE WEATHER IS COLD DURING BLOOMING TIME, SO THAT THE BEES DO NOT REACH THE BLOSSOMS

BY J. W. ROUSE

We know of no two other businesses that fit so well together as bees and fruit-growing, as neither interferes to any great extent with the other, and each of these pursuits needs the other to succeed well.

Bees can do without fruit-bloom in early spring, as they are compelled to when it is too cold or wet for them to work on the bloom when out; but in many cases the

fruit-trees do not do nearly as well as when bees work on the bloom. We would not pretend to say that *no* fruit could be grown without aid of insects to carry and distribute pollen, yet in many cases it is true that, unless insects do do this work, the trees often fail to set more than a very little fruit. Horticulturists are agreed that fruit-trees should be located so that the different kinds



A close view of some of the apples just before they were picked (see preceding page). Notice how thickly they are clustered, and that every one is a perfect specimen. See also the cover picture for this issue.

may blossom at nearly the same time so as to distribute the pollen properly. The wind often aids in this work; but in unfavorable weather, if the winds are contrary, or dur-

ing a wet time when no insects can get around, it often happens that no fruit is set. Even under the most favorable circumstances insects are a great help in the proper

distribution of the pollen, as they mix it to a great extent, and thus in a large measure prevent in-breeding, which is so detrimental to fruit-growing in most instances. Many of the leading horticulturists are now agreed that bees are a great help in fruit-growing.

One of the most extensive fruit-growers, who has a great many orchards in different States, says that he always wants bees in or near his orchards, as in so many cases they are a necessity to growing fruit by properly securing fertilization of the bloom.

As has been stated before, there are other insects that work on fruit-bloom besides bees; yet, as most people know, in early spring in blooming time, when it is so necessary for the insects to work on the bloom, bees are much more plentiful than perhaps all other kinds together, especially when bees are kept in any great quantities, as the bees live through the winter in colonies, whereas other insects live as individuals, and have to breed up. In many cases they are too late for early fruit-bloom. As an illustration, bumble-bee queens winter singly, so that, when the first bloom of clovers

is on, there are only a very few of these bees; but by the time the second crop comes on, the queen bumble-bee has raised large families, and there are great numbers of them at this time; so the second crop of clover—especially red clover—is the crop that has the seed, the first crop having but very little. If it had been properly fertilized it might have as much seed as any crop.

In our observations in the past we have noticed that in a wet time, when bees can scarcely get around, but little fruit sets on the trees. During one wet cold time the sun came out for a while, and we had one pear tree on the east side of a house that the bees worked on an hour or so. This tree set fruit, and had pears on it, and no other of our trees or any others in our neighborhood, so far as we know, had any pears on the trees that season. If fruit-trees are so protected that bees can not visit the blossoms, little or no fruit will set. In all our experiments on this line we have never had any fruit to set if the bees could not get to the bloom.

Mexico, Mo.

500 PERFECT COMBS FROM FOUNDATION HAVING WIRES IMBEDDED OUT OF LINE.

BY W. N. RANDOLPH

[The following article was written last spring, but our correspondent had neglected to send it to us until the publication of the article by H. H. Root on the same subject in our Nov. 15th issue. We are glad to place it before our readers here as an additional endorsement of the plan of pulling the wires out of alignment when imbedding.—ED.]

It seems that, with all that has been written on the subject, it would be exhausted; but I am satisfied that we have a lot to learn yet in all departments of beekeeping. Believing this, I will give you my plan.

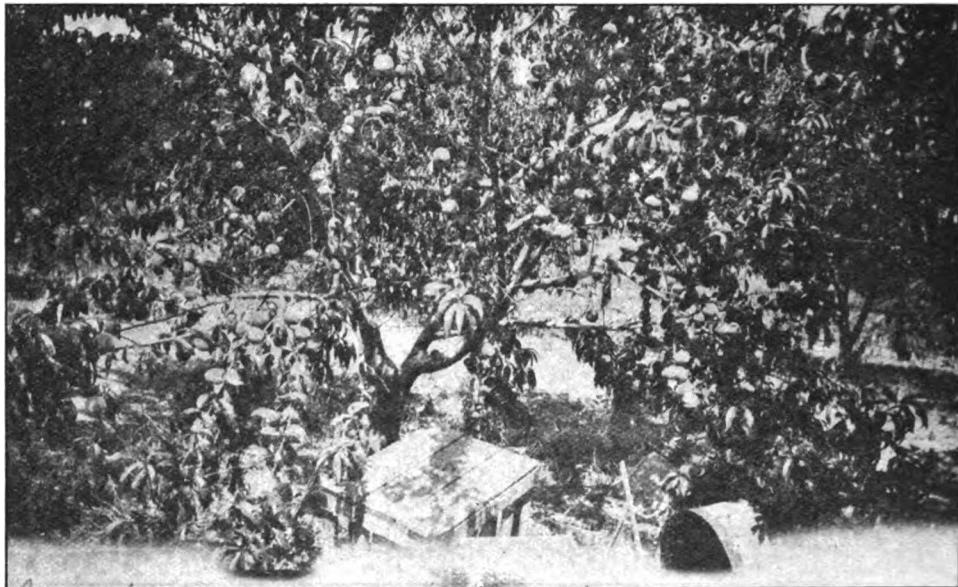
I use the Hoffman brood-frames with full sheets of foundation, and with four wires imbedded in the wax across the frames. I use the frames with grooves and wedges in the top-bar to hold the foundation fast at the top; but I find in practice that the heat of the hive will very often loosen the foundation, and the bees drag it down and make a mess of things, even with the wedges pressed firmly in. In order to prevent this I pour a tiny stream of melted paraffine along each side of the foundation where it joins the top-bar, to hold the foundation secure. I use the paraffine because it costs only 9 cents per lb., while the wax is worth 30 cents, and the bees do not seem to notice the substitution.

In wiring I use the spur imbedder. There is a point in wiring that is overlooked; the top strand of wire should be pulled down

slightly in the center, and the bottom strand should be pulled up in imbedding, so that the bottom wire will brace against the pull of the top wire, and prevent the wrinkling or buckling of the foundation. The two middle wires should run straight across the frames. This will give smooth straight and strong combs, with the wires braced as in a suspension bridge, and the wires will take the jars from the combs as they were intended to do. The wires should not be pulled down too tight or a job of buckling may be the result; for while outside the hive the foundation may be cold and stiff enough to offer sufficient resistance to the pull of the wires and look just right when it is in the hive, and the heat of the bees softens it, it will often give way to the pull of the wires.

I used this plan in making some 2400 combs a year ago, and an equal number last season, and nearly or quite all of them made perfect combs.

Do not give your nice new prepared combs to the bees until a honey-flow is on and they are secreting wax. Remember to



Peach tree that blossomed in cold weather and bore a good crop because it stood so close to the bees.

run new extracting-combs gently through the extractor the first season used; for when new they are very fragile. After the first season they will get tougher each year. It is strange that, while the bees will always

store honey first in the old combs, they will start queen-cells in the nice new combs in preference, even if they have to move eggs from the old combs to the new.

Letohatchee, Ala.

PEACH TREES NEAREST THE BEES PRODUCED THE BEST CROP

BY S. H. BURTON

Dr. C. C. Miller, page 517, Aug. 1, says he has always had just a little doubt as to the statement that bees are of more value as fertilizers than as honey-gatherers; but the cranberry business, p. 479, July 15, may yet remove all doubts. I herewith submit some photographs of our peach orchard which may help to dispel any doubts. Dr. Miller may be from Missouri, and have to be "shown."

We have eight colonies of bees located in our packing-shed, with the entrances facing east. These stands are set on a bench, and the alighting-boards extend through an opening in the wall. When the peach trees commenced to bloom it was nice balmy weather, and the bees were flying finely; but by the time two-thirds of the blossoms were out the weather turned very cool with a cold rain following. For a period of ten days we had damp, cool, muggy weather, and the bees did not venture far from home. However, as our packing-shed and the bees are located right in the midst of the peach-

orchard the first row of peach trees directly in front of the shed, and about 30 feet from the alighting-boards, were loaded with peaches, while the second row of trees from the bees showed more fruit on the side next to the colonies than on the off side. At the rear of the farm, across a five-acre lot, the peach trees averaged about two dozen peaches to the tree, all the same variety, Carmans; all trees had equally good care as to spraying, pruning, and cultivation. Now, I don't say that the bees are entirely accountable for the great showing of fruit on the trees next to the hives, but it does look as if the weight of evidence was in their favor. Of course, some one will say that the shed had something to do with it; but one tree at the corner of the shed, and not protected by it from the prevailing cold winds, had more peaches than any of the rest. This tree stands within five feet of the hive, and just at the side of the line of flight. During the cool spell referred to above I noticed that very few bees were

working on the peach bloom on the further side of the orchard, I having some work there which caused me to take note of the fact; but I never thought to observe if they were working on the trees near the shed; but since the trees have fruited I have studied over the matter.

By the way, if any beeman wishes to set a good variety of peach he can not miss it on the Carman. It gets ripe here about three weeks ahead of the Alberta; comes on

the market after early peaches are gone, and is fine for canning or dessert. It is an early and prolific bearer, and very hardy in bud. The orchard shown is five years old, and producing its first crop of any consequence. We are able to market every peach at home at \$2.00 per bushel, and the people cry for more. Next spring, if we have indications of a good peach crop I shall scatter the hives through the orchard and note results.

Washington, Ind.

COLONIES WINTERED OUTSIDE RUNNING SHORT OF STORES

BY A. C. GILBERT

No doubt, owing to the very mild weather up to Christmas, thousands of colonies of bees will die before March from lack of stores in the northern sections of the United States if not looked after. None of our hives have racks on during the winter, as they are all removed in the fall when all colonies are examined to ascertain that all have a sufficient amount of stores. At the time of removing the racks, small cobs are first laid on the top-bars *a la* Dr. Miller, over which a piece of cotton cloth or burlap is covered; then the chaff tray or cushion is placed in proper position. At any time in the winter any colony can be examined very easily by lifting off the chaff tray or cushion and turning up the covering a little from over the top of either end of the top-bars; and as the bees will generally be closely clustered at this season of the year, the amount of stores and number of bees can be ascertained very readily. Some colonies will be found to cover a large portion of the combs; often less, and perhaps some may not occupy one-third of the combs. The last mentioned may have several combs of honey to spare. At the same time it will be a great benefit to such a colony to have the frames of honey removed and the division-board moved up, thereby making them far more comfortable, and putting them in better shape to pass through the rest of the winter, also lessening their chances of being robbed.

We have saved many of the largest colonies by dropping in two or three combs of honey along in February and March on even a cold day without harming them in the least by the operation. Some very populous colonies which apparently have a great plenty of honey in the fall run short, especially in a mild winter, when so much more is consumed.

One season we lost several of the largest colonies in the yard from starvation along in March. Since examining them as stated

we have lost none. It would be a good idea to heed the editor's warning in the Dec. 15th issue. *Don't let your bees starve.*

SNOW-COVERED COLONIES.

We doubt whether it is a benefit to have the snow drift entirely over the hive. From what experience we have had it is best not to have much snow around the hives if it can be avoided—that is, to have it come up



A peach tree that blossomed in cold weather, and did not produce a good crop because so far away from the bees they could not reach it.



Members in attendance at the Iowa State

very high on the hives. Before building a high tight board fence back of the hives in our apiary the direction the snow generally drifts from, most of the hives were frequently completely buried in the snow; consequently the bees in those hives would commence to breed too early, which greatly excited them, causing a greater consumption of honey, which, with the dampness and

sweat, would generally bring on dysentery, etc., while the bees in other hives where the snow did not drift on them were entirely free from the disease, and wintered in fine shape. By the way, not much has been written lately about the above disease and the pollen theory since the days of the late James Heddon.

Honeoye Falls, N. Y.

THE SECOND ANNUAL CONVENTION OF THE IOWA STATE BEEKEEPERS' ASSOCIATION

BY H. H. ROOT

When a few Iowa beekeepers first became enthusiastic over the possibility of an organization among the beekeepers of the State they were told that there were too few beekeepers, and that they were too widely separated to make the plan a success—that it had been tried before and abandoned, etc. Nothing daunted, however, they started in to do their best at perfecting an organization on the assumption that "where there is a will there is a way." How well their efforts and the efforts of others who helped succeeded is best told by the convention picture which appears above, but the picture does not show all the members in attendance by any means. In all there are now about double the members of a year ago. Good for Iowa! The second annual meeting was a success in every way, both in point of attendance and enthusiasm.

A large amount of honey was contributed by the members for the Salvation Army Christmas dinner, and a jar of honey was also sent to Governor Clark for his Christmas table. To encourage the use of honey at Christmas time, large display cards were furnished all who desired them, bearing the words, "Eat Honey for Christmas Dinner."

As I was able to be present at but one session, I shall make no effort to give a general report of the convention beyond the synopsis of the president's address and a brief report by J. W. Stine, which follows. I secured several papers that had been read, parts of which will appear in later issues.

SYNOPSIS OF ADDRESS OF PRESIDENT FRANK C. PELLET.

1. Only one State of equal area ranks ahead of Iowa in the value of her bees.



Des Moines, December 12-13, 1913.

Iowa far outranks Colorado, Idaho, and other western States of greater area whose possibilities are so widely advertised.

2. With proper encouragement Iowa can soon rank first, area considered, as a honey-producing State. Only California and Texas, with their great size, are now far in advance.

3. The society has secured the passage of a foul-brood quarantine law, and better support for the inspection work the past year. Also greatly increased attention in the way of better premiums and facilities at the State and county fairs.

4. The greatest need of the beekeeping industry in Iowa now is a better understanding on the part of the public of its importance to the State, and better methods of production and marketing on the part of the beekeepers.

5. Instead of asking for increased support for the bee-inspectors' office the beekeepers should begin a campaign of education to the end that the treatment and prevention of diseases be better understood and that inspection be less needed as a result.

6. The use of second-hand honey-containers and other equipment should be discouraged unless thoroughly disinfected, as this has been a source of much of the spread of foul brood.

7. The society should endeavor to work out some system of crop distribution that would net the producer better prices without injury to the consumer. Too much honey is shipped to commission merchants

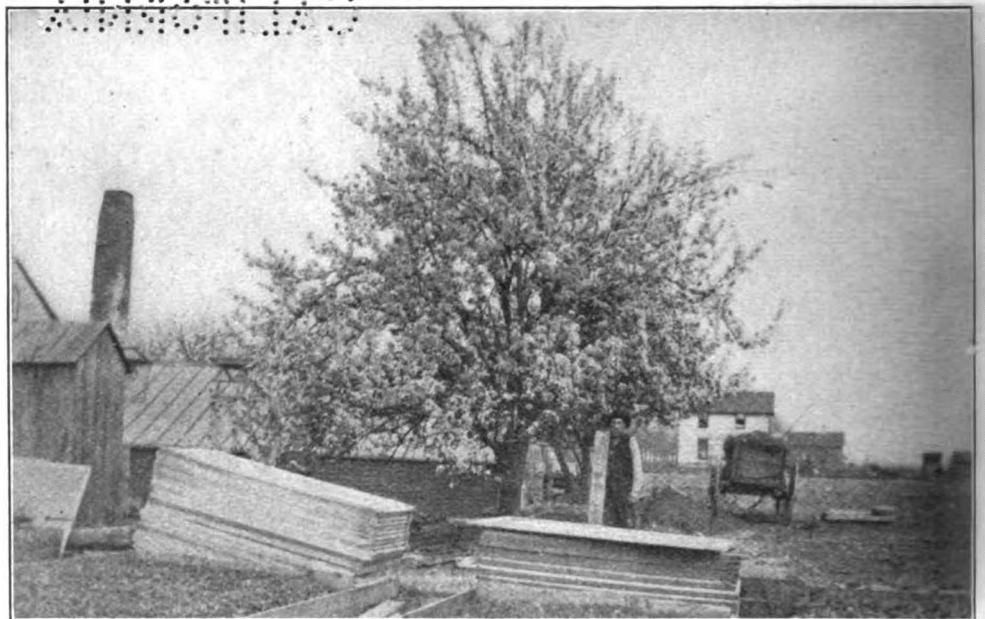
in Chicago to be sold to jobbers, who in turn sell it back to grocers near at hand. The securing of a list of all persons who desire to purchase honey, by the secretary of the association, who will place said list at the disposal of every member of the association, will be a step in this direction. If grocers wishing to buy honey knew that, by writing the secretary, their wants would be placed before all the leading beekeepers of Iowa, they would readily take advantage of the opportunity.

8. A system of regular crop reports from each county should be developed, to the end that the probable production may be ascertained early, and prices governed accordingly.

9. The society should appoint a committee to look into the possibilities of co-operative marketing by members of this association.

10. The beekeepers should endeavor to secure an extensive campaign of education through the State Department of Agriculture, the agricultural college, and other avenues, rather than to attempt to secure further increase in the support of bee-inspection work at present. Better understanding, on the part of the beekeepers, of bee diseases will largely reduce the necessity for inspection by a State official.

11. Beekeepers should begin a campaign to establish the use of honey on every table for the Christmas dinner. The Salvation Army and other charities should be provided with honey for the poor who are unable



Julius Johansen, of Port Clinton, Ohio, standing under a pear tree loaded with blossoms and bees. The apiary is just back of the greenhouse out of sight.

to buy it for such occasions. With a little effort honey could easily be made as essential to holiday dinners as cranberries have become already.

THE DISCUSSION ON FOUL BROOD
BY J. W. STINE, *Deputy Bee Inspector.*

One of the topics of special interest to those having diseased bees, or who had near neighbors with diseased bees, was the paper on the foul-brood situation in Iowa by Mr. Edward G. Brown, of Sergeants Bluff. He told of a very interesting and practical way of dealing with American foul brood. The plan in brief was as follows: Take the diseased colony and shake or brush all the bees from the comb and hive it in a hive with starters. Insert an empty comb in

place of one frame, with the starter, thus giving a place for the bees to deposit the diseased honey. As soon as the honey has been deposited, probably by the next morning after hiving, take away the comb of honey and insert a frame with a starter. All the combs built from the starters are saved by this method.

The beekeepers of Iowa as a whole seem quite willing to co-operate with the inspectors in getting rid of disease among the bees. As a matter of fact, the work of the inspector is educational; and when the beekeepers are all willing to become educated along aparian lines, especially with bee diseases, there will not be the need of the field work of the inspector that there is now.

FRUIT-GROWING SO GENERAL THAT BEES CAN NOT MAKE A LIVING; YET THE FRUIT-MEN ARE BUYING MORE BEES

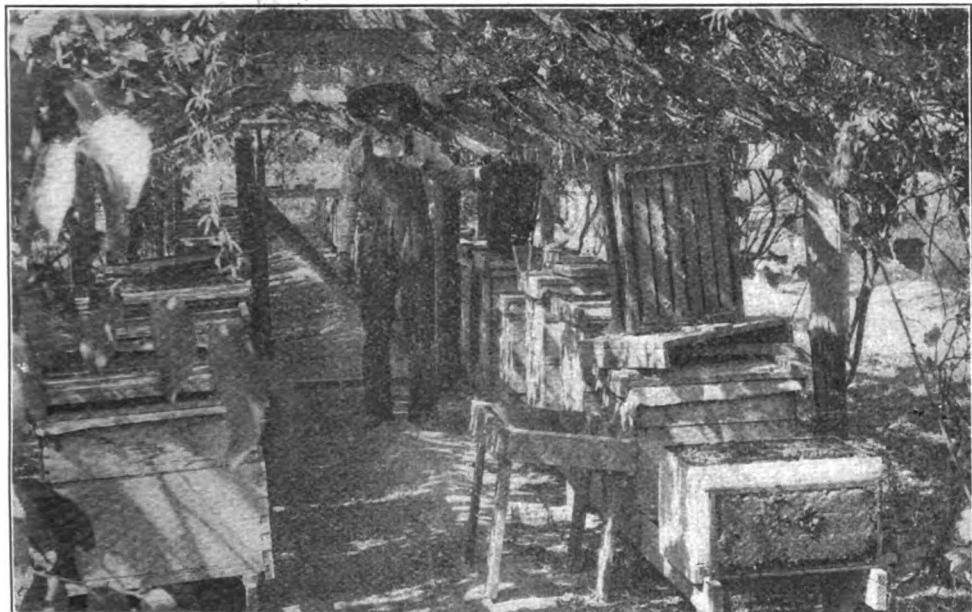
BY JULIUS JOHANSEN

On the so-called "Peninsula," Danbury, and Catawba Island, fruit-growing has become so general that the farmers there buy their own feed stuff, every available foot of ground being planted to fruit. It is only when an orchard has become too old, and is, consequently, pulled out, that the land is planted to farm crops a few years to in-

vigorate it, as they say. Then it is planted to fruit again.

Most of the farms are small—many only ten or twenty acres, with very few above 40.

Many of these small farmers were also beekeepers on a small scale a few years ago. They kept eight or ten colonies each: and one of whom I knew had 25 or 30. How-



Apiary of D. S. Zedeker, Parlier, Cal., consisting of 151 colonies, all located under a grape-arbor.
Why don't the bees "eat the grapes"?

ever, as fruit-growing became so general, the bees failed for lack of food, I think. Not able to get what they wanted, they took what they could get—honey-dew, I suppose. Some have asked me why their bees made nothing but black, bad-tasting honey. On account of it the colonies often died through the winter.

After most of the bees had died the fruit-growers began to realize that some certain varieties of peaches did not do so well as they did when there were bees to visit the trees. This was especially noticed by a Mr. R. Shumardebeck, an extensive fruit-grower, and a keen observer of nature. He called on me, and asked for the loan of some

bees. He said that, since his neighbors' bees were dead, he scarcely saw a bee in his orchard; and since then this variety of his peaches had given very small crops.

Well, he got the bees, and hauled them six or seven miles; and after fruit-bloom was over he brought them back again full of honey. In the fall he brought me some peaches, and said the bees had greatly benefited his crop. At this time he also made arrangements to get some bees for the next spring.

Since then I have heard that some of the smaller growers have stocked up again for the sole benefit of their fruit.

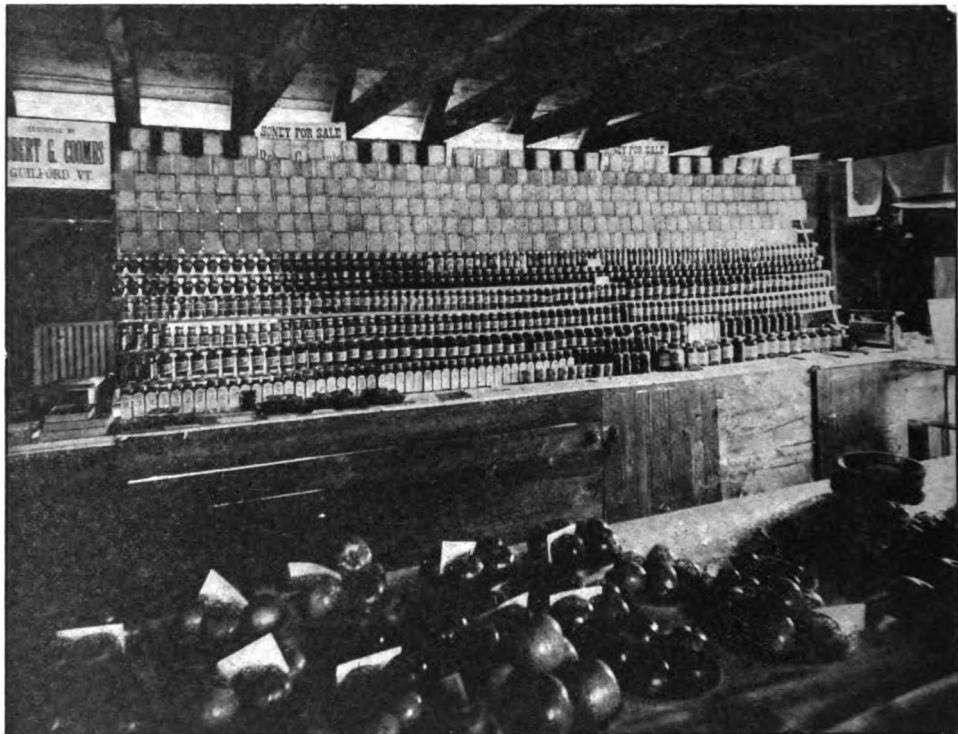
Port Clinton, Ohio.

EXCELLENT HONEY DISPLAY AT THE BRATTLEBORO (VT.) FAIR

BY DR. BURTON N. GATES
Assistant Professor of Beekeeping, Massachusetts Agricultural College

The Valley Fair, held at Brattleboro annually, has the New England reputation for superiority of the materials exhibited in all classes. This September Mr. Robert G. Coombs, of Guilford, made an especially attractive display of bees, wax, appliances, and comb and extracted honey. For the honey display, as shown in the illustration, Mr. Coombs used the massing effect. This was accomplished by means of shelving arranged in graduated steps. A further

unique and desirable feature was the illumination of his display by numerous electric lights in the rear. This added materially to the brilliancy and sparkle of his products. The fair being held after cool weather had set in precluded the possible disaster from the entrance of robber bees which might have attacked the exposed comb honey. To obviate this difficulty, as has been previously mentioned, the Connecticut Beekeepers' Association have prohibited the display of



Honey exhibit at the Brattleboro (Vt.) Fair, 1913. This is an excellent set-up of the local product. Note the brilliancy obtained by the electric illumination from the rear.

comb honey which is not glazed or otherwise protected from the attack of bees. The glazing is further advisable from the sanitary standpoint. Another feature which Mr. Coombs might have utilized is the glass shelving so much liked by those who display in Connecticut. Glass shelving, of course, facilitates the transmission of light and adds to the brilliancy of the exhibit.

Mr. Coombs is, by the way, an enthusiastic and progressive beekeeper. He informs the writer that, from 131 colonies, he

secured 1793 pounds of fully capped comb honey and 2209 pounds of extracted honey. Mr. Coombs also raised upward of 1000 queens, and has, besides, handled upward of 400 colonies of bees, a part of which was the increase from his yard. He puts into winter quarters about 131 colonies. The nectar flow in his locality is largely clover and raspberry. By judicious manipulation it is estimated that at least 500 colonies may be supported in the vicinity.

Amherst, Mass.

THE OPINIONS OF SOME FRUIT-MEN AS TO THE VALUE OF BEES

Location for Outyards Provided by the Fruit-men who also do all the Hauling Necessary

BY J. M. DONALDSON

On page 790, Nov. 15, the editor says: "We believe the time will soon come when beekeepers living in fruit districts need pay no rent for out-aparies." With me that time has already come. When I moved into the fruit-belt of New Jersey, long before I

had increased my bees enough to make out-aparies necessary, I began receiving requests from fruit-growers to place bees in their orchards, owing to the fact that they wanted the bees more than I did the locations. I was able to make bargains with



J. M. Donaldson's apiary, located in the Ballinger orchard. Mr. Ballinger is so anxious to have the bees there that he does all the hauling free of charge.

them that were very much in my favor. My agreement usually is that I place the bees on the farm in question, and in return the owner gives me ground rent, and does all my hauling to and from the yards. This agreement makes it possible for me to operate all my yards with one outfit without either keeping or hiring horses.

Of course I give my landlords all the honey they need for family use, but in return they give me fruit and berries that equal and often exceed the price of the honey.

Cut No. 1 shows my Ballinger yard, located on the farm of David Ballinger. This farm has 138 acres planted with fruit and berries. Here is what Mr. Ballinger says:

The bees at my farm I consider a very necessary adjunct to fruit-growing. I grew last year 15 acres of strawberries; and although we had several frosts which killed quite a lot of bloom, and also fruit that was set, we had a fair crop, for which I give the bees the credit, as they helped to fertilize the later bloom, which, of course, was weak in that particular.

I also find the bees valuable for helping to get a set of fruit on my apple and peach orchards, as oftentimes we have either too much wind or some days none at all.

My crops of fruit and also strawberries have been larger, and also more regular, since keeping more bees.

Cut No. 2 represents my Lippincott yard, located on the farm of J. Howard Lippincott, which contains 120 acres planted with

apples, peaches, and berries. I was unable to get a written statement from Mr. Lippincott, but the fact that the apiary is there should be sufficient proof that he considers them valuable.

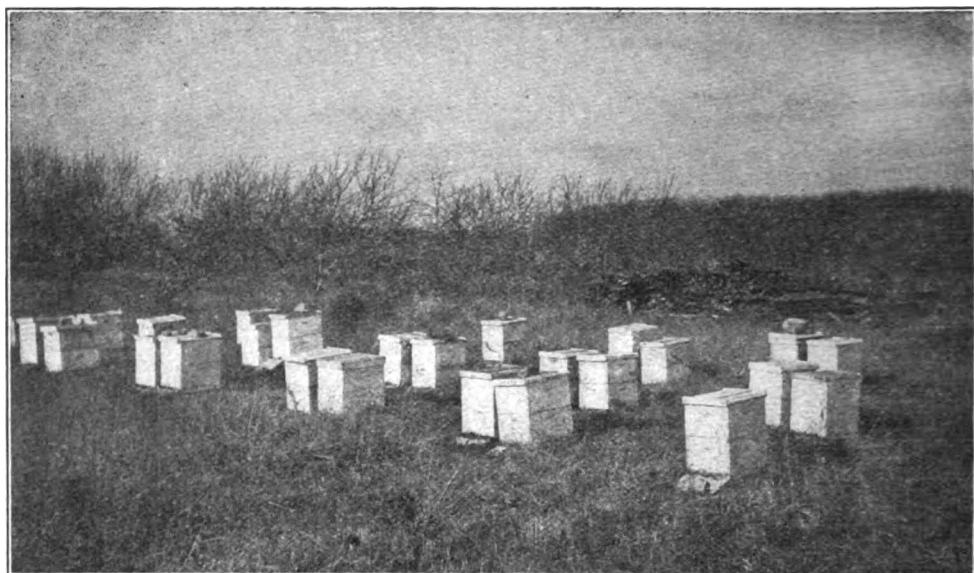
I have only one yard that is not located on a fruit-farm. That is my Campbell yard, located on the farms of the Campbell Soup Co. They grow vegetables and berries, also cucumbers, both in the open and under glass. Mr. H. F. Hall, their general manager, who is also president of the Vegetable-growers' Association, says:

The service of the honeybee is of the utmost importance in growing cucumbers under glass; as, without their aid, it would be necessary to hand-pollinate every female flower in order to obtain a crop. This would result in higher prices, due to the extra labor required, as well as to the fact that a lighter yield with a smaller percentage of high-grade fruit has always resulted when hand pollinating is substituted for the work of our little friends the honeybees.

The bees adapt themselves very readily to the greenhouse environment, provided the hive is not kept at too high a temperature. During warm weather it is advisable to place the hive outside the house, and provide an opening through the wall or glass.

I think that beekeepers who are located near fruit-growers can hasten the time spoken of by the editor if they will arm themselves with expert testimony, go to the fruitmen, and have a heart-to-heart talk.

Moorestown, N. J.



Another of Mr. Donaldson's apiaries, located in the Lippincott orchard, consisting of 120 acres of apples, peaches, and berries.

COLOR SENSE OF THE BEE

A Lecture by Dr. Carl Mulsow, Munich. Published in the Muenchener Bienenzeitung. Translated by J. A. Heberle, B. S., Markt Oberdorf, Bavaria, German..

[The average American reader is apt to skip over scientific articles, especially those which are not illustrated. In other words, we read what can be read quickly, and often put off the long discussions for another time—another time which too often never comes. The following list of experiments, proving that bees are not color blind, is interesting and valuable, and we feel sure that those who pass it by will be the losers.—Ed.]

The relation between flowers and insects has long been one of the most favored and interesting chapters of biology. The naturalist Christian Konrad Sprengel was the first one who, at the end of the 18th century, showed by many experiments that flowers do not, without compensation, give their sweet treasure (the nectar) to the visiting insects. He demonstrated that the flowers were dependent on the visits of the insects. He showed various forms and devices of the blossoms that insured the necessary pollination by the nectar-gathering insects. The flowers secrete nectar, not as a generous gift for the benefit of the insects, but for the selfish purpose of being pollinated to propagate the species. Sprengel was also of the opinion that the various bright colors and the sweet scent of the flowers were for the purpose of attracting the insects. To facilitate the finding of the nectar in the depths of the blossoms there are often conspicuous markings and patches at the base of the petals—signs to show the insects the way—to lead them to the nectaries.

After Sprengel other naturalists continued the study of these interesting observations,

and added numerous new facts. Most naturalists accepted the theory that the bright colors of flowers are for the purpose of attracting the insects. Some scientists, however, opposed this theory, especially the French scientist Plateau, who endeavored to show by numerous experiments that the color is of no importance for the finding of the flowers by the insects. Other scientists who opposed Plateau's view devised new experiments to show that Sprengel's theory was well founded.

The entire controversy was opened again when the ophthalmologist Hess, who had made an extensive investigation about the color sense of various groups of animals, asserted that the insects, especially the bee, have no color sense—that she is color blind. To digress a little, a few words about what is meant by color blindness. The color-blind man can distinguish various colors from each other, but he does not see as the man with the normal eye; various colors he sees as only different shades of gray. He distinguishes the colors only after their brightness. Through long experience the color blind has learned from childhood that

his associates called this blue, that red, etc., so that in most cases he can tell the color of objects from its brightness. If, however, two colors that are of a decidedly different hue (shade) have the same brightness, then the color blind can no longer see a difference. So we may say the color blind has the ability of distinguishing various colors, but has no sense of color—he sees the colors not as such.

Hess came through his extended investigations to the conclusion that a sense of color is developed only by the higher order of vertebrate animals, and that the lower order from the fish downward are destitute of the sense of color. Hess used in many of his experiments the bee, and thereby was the controversy whether the bees or the insects were attracted by the flowers through their bright colors opened anew.

If, as Hess asserts, the bees are color-blind, how are the various experiments by which many scientists formerly showed that the bees were attracted and the sense of location assisted by the colors to be explained? The explanation is very easy. All these experiments showed merely that the bees can distinguish between various colors the same as the color-blind man, but are no proof that the bees have color sense. This is the new principle on which Hess (and perfectly correct) wants the question solved.

That is the theoretical part of the question. Now we will consider some selected experiments which have been recently made with a view of proving the color sense in bees. We will determine the value of these experiments after the new theory developed by Hess.

The zoologist v. Dobkiewicz made numerous experiments which, in their arrangements and results, often agreed with those of former investigators. For instance, on a clover-field that was visited by a great number of bees he put up conspicuous artificial flowers of a yellow color that were filled with honey. These flowers remained unnoticed by the bees for a long time. The bees when once started to work on a flower are not readily detracted. If, perchance, a bee alighted on one of these artificial flowers, or the experimenter put one on, such a bee returned to the new feeding-place as long as she found something there. She is guided by the sight because now she alights also on yellow artificial flowers which contain no honey.

In a similar way bees may be trained to visit colored disks. In a place in his garden over which the bees of one colony flew regularly, v. Dobkiewicz put up large disks that were covered with red, yellow, and

orange colored paper. These disks were not noticed by the bees. He put a plate with honey near these disks. This plate, with a few bees that had alighted on it, was set upon the yellow disk. The bees were now for days fed on the yellow-colored disk. One day the places of the colored disks were exchanged, but the honey remained on the yellow disk. The bees visited only the yellow disk—never the orange-colored one that had been put on the place that the yellow had occupied. Finally the disks were again placed as at first. The yellow disk was now without honey, but the red and orange colored disks received honey. The bees visited again the yellow disk, looking in vain for the accustomed honey, while the honey on the red and orange disks was not noticed. The bees had been trained to look for food on the yellow color.

The possibility of training bees to visit a certain color is shown very nicely by the following experiment also carried out by v. Dobkiewicz.

A square box was used having three sides of glass and the fourth one of cardboard. In the cardboard two openings were cut, one to the left side, the other on the right side. A comb of honey was put in the box. The bees had been trained in a former experiment to use an opening in a yellow box. On the cardboard side of this glass box a yellow disk was put next to the hole on the left side (the hole was kept open). The other hole on the right side was marked likewise, but a red disk was used, and the opening was closed. Inside both openings were marked just as on the outside. The bees, which had previously been trained to the yellow color, used for entrance and exit the yellow opening on the left. After some time the marking was exchanged, the red disk was put to the left and the yellow to the right opening. This change was made not only on the outside but on the inside also and both holes kept open. The bees were not confused; they used the yellow opening as before. After some time the marking was changed back as it was on the start of the experiment, but after a while the marking on the inside of the box was changed, the outside disks remaining unchanged—both holes kept open. The left opening on the outside was now marked yellow and on the inside red. The opening to the right was outside marked red, but on the inside yellow—both holes kept open. Again the bees used without hesitation the yellow opening on the left side for the entrance, and the right opening, which was *yellow on the inside* and red on the outside, was used as exit. We might say that their sense of location, or the entrance

and exit in this experiment, was governed entirely by the yellow color.

These experiments proved what older investigations had already shown—the bees were in fact locating (finding their way) by colors. But do these experiments prove that the bees possess the sense of color? No, the bees might be color blind and react just as they did. By these, as by older experiments, was proven only that the bees can distinguish some colors. Whether they see colors as such is a different question which may also be solved by experiments, as we shall see by the following investigations of the zoologist K. v. Frisch, Munich. He takes issue with the views of Hess regarding the color sense of animals. He has also made experiments with bees to disprove the view of Hess that the bees have no sense of color.

K. v. Frisch in arranging his experiments was guided by the following principle:

A color-blind eye sees the colors only as various shades of gray. It sees no colors—only colorless brightness of variable intensity (*farblose Helligkeitswerte*).

Therefore to each color—for instance yellow—there must exist a certain shade of gray which a color-blind eye can not distinguish from yellow; both will appear of the same colorless brightness; both will have the same "*farblosen Helligkeitswert*."

K. v. Frisch took 30 pieces of gray papers which showed all the various shades of gray from white to black. These papers, all of equal shape and size, were fastened on a table, not in the regular order of the shades of color, but at random. Among them were also placed two papers in shape and size as the others but of yellow color. On each paper a small dish was placed. Those on the gray papers were kept empty, while the two dishes on the yellow paper were filled with sugar syrup. As soon as the bees of a nearby colony discovered the syrup on the yellow paper they began to visit these two dishes in large numbers.

The bees were fed for two days on the yellow paper to train them to the yellow color. The places of all the papers were frequently changed so the bees might not learn to locate the syrup after the order in which the papers were arranged on the table (to eliminate as much as possible every thing for guidance except the color). The bees alighted always on the yellow paper without the least hesitation.

The two yellow papers and the dishes were taken away and two new yellow papers were put in other places. Two new dishes were put on these yellow papers. This was done so there would be no odor to attract or guide the bees. Now all the

dishes on the gray and yellow papers were filled with syrup.

From this experiment the following deduction was made: If the bees are color blind they will see the yellow only as a gray, and must mistake some one or more of the 30 gray shades for the yellow. The bees, however, made no such mistake; they visited only the two yellow papers and paid no attention to the many syrup-dishes on the gray papers. In locating the syrups they were guided only by the yellow color.

After the syrup had been removed from the dishes on the gray papers and the bees fed for some time on the yellow, the dishes with the syrup were removed from the yellow and replaced with empty dishes, so that all the papers on the table contained only empty dishes. The bees visited the two dishes on the yellow papers in great numbers, searching in vain for syrup, but not a bee alighted on one of the gray papers.

In the preceding experiment it has been proven that the bees recognize the yellow paper not only by the colorless brightness but by the yellow color. K. v. Frisch showed further by experiments that the same results can be obtained for blue.

The following is a strong proof. After bees had been trained to blue the two blue papers were removed and two new blue papers were put on another place. All the 30 dishes on gray paper were filled with syrup; only the two dishes on the blue paper were left empty. The bees visited the empty dishes on the blue papers in great numbers, and searched industriously for syrup, while the dishes with the syrup on the gray papers were for a long time not noticed.

Against the preceding experiments the following objection might be raised. Although the shades of the 30 gray papers were so nicely graded that the human eye could barely distinguish the two nearest shades, perhaps the eye of the bee is so delicate for perceiving differences in color brightness that even if it sees no color it can readily distinguish the yellow and blue paper by its shade of brightness. If that were so, then the bees could be trained to one particular shade of gray. K. v. Frisch made the following experiments:

The bees were fed nine days exclusively on gray No. 15. After removing the syrup-dish from No. 15, and replacing it with an empty one, the bees were searching for the syrup on the various gray papers without any preference to No. 15. The objection to the experiments is therefore groundless.

With the above-recited experiments there has doubtless been proven that the bees

really see colors. Another question is whether the color sense is similar to ours—if not, in what way it differs. K. v. Frisch has tried to solve this problem too. After bees were trained to a certain color, he used besides the gray papers various other colored papers also, and found that the bees sometimes, besides the color they were trained to notice, would also take notice of similar colors. Since the investigation is not complete we will not detail them further. It is interesting to note that the bees could not be trained to pure red. They would mistake it for black and dark gray. That means that the bees can not see the red color as such.

The fact that the bees can't see red as such brings us back to the relation of insects and flowers. In former times when no one thought of making exact experiments about the color sense of bees, investigators had pointed out that blue and violet blossoms were preferred by the bees, and the pure red neglected. This is true only of pure

red. Purple and carmine red contain some blue, and are, as v. Frisch showed, recognized by the bees, but easily mistaken for blue.

The results of the experiments are in harmony with the colors of the flowers. With the exception of the poppies, whose size without the color is sufficient to attract the insects, there are hardly any pure-red flowers in our flora.

Many plants produce shining-red fruits, but these are intended for the birds, not the insects. It is of special interest that in some countries red blossoms are found quite abundantly, but by those plants that are pollinated by the humming-birds, not by insects.

The investigations of v. Frisch have doubtless proven that the bees have color sense. The old theory that the colors of flowers are designed to attract the insects, which has been opposed by Hess, has been successfully vindicated.

Markt Oberdorf, Bavaria, Germany.

REPORT OF KENTUCKY STATE BEEKEEPERS' CONVENTION

BY RICHARD PRIEST DIETZMAN

On Friday, January 9, 1914, of Farmers' Week, conducted under the auspices of the Agricultural College of the Kentucky State University, there was held a beekeepers' convention in one of the assembly rooms of the State Experimental Station. About fifty beekeepers were present when the convention was called to order at ten o'clock in the morning by Professor H. Garman of the State Experimental Station. He welcomed the beekeepers in a few well-chosen words, and introduced Mr. H. F. Hillenmeyer, of Lexington, Ky., who presented a very interesting paper on "Kentucky as a Beekeeping State." He was followed by Dr. J. H. Kastle, the director of the station, who had prepared a paper outlining the purposes of the meeting.

Professor C. W. Matthews, of the station, was introduced and read a very interesting paper on "Bees in Relation to Fruit-growing."

Dr. M. A. Aulick, of Bradford, Ky., was next introduced, and gave a most interesting talk on his methods of producing extracted honey. We understand that Dr. Aulick is one of the most successful beekeepers in the State, and that his extracted honey has always a ready market at the best prices. When he concluded his address, the points that he made were discussed on the floor by various people who were interested in the

subject, after which Mr. H. C. Clemons, of Boyd, Ky., delivered an address on "Wintering Bees," advocating the use of sealed covers. There seemed to be a number present in favor of the absorption cushion, and an animated debate took place, which brought the convention up to the adjourning hour for lunch.

After lunch, Professor Garman presented a paper on the "Prevention of Swarming." Mr. E. E. Barton, of Falmouth, gave a talk on sweet clover. Mrs. J. T. Marvis of the same town was unable to be present, but sent a paper on the same subject, which was read.

Mr. Clemons then delivered a second address in the absence of Mr. Jordan, of Morgan, Ky., on "The Importance of Good Queens in an Apiary."

The convention then proceeded to organize a State Beekeepers' Association. Dr. Aulick was elected President, Mr. Clemons Vice-president, and Professor Garman Secretary and Treasurer. The constitution was adopted, and plans were laid for a vigorous campaign for members.

A bill had been prepared to strengthen the law concerning foul-brood inspection, and it was next taken up and discussed, section by section, and unanimously approved as prepared, and each member present pledged himself to use his best endeavors



Benjamin Paine's apiary and orchard at Roswell, Idaho. Reprinted from the March 15th issue for 1907.

with the members of the Legislature from his district to secure the passage of this bill, after which the meeting adjourned.

It is hoped during the coming year a large number of beekeepers in the State will become members of the State Beekeepers'

Association, and that when we meet again next January during Farmers' Week we will have a strong, live, and compact organization, and a meeting that will be full of interest and instruction to all, from beginner to expert.

A LARGE FRUIT-GROWER WHO IS ALSO AN EXTENSIVE BEEKEEPER

BY BENJAMIN PAINE

[Remembering the picture of the apiary in an orchard which we published in our March 15th issue for 1907, we wrote Mr. Paine, asking him to tell something of his experience during the six years that have elapsed. It transpired, however, that he had moved from the former location to another one near by—but his article, which follows, gives the particulars. The engraving referred to is reproduced here-with.—ED.]

Finding I could not combine farming with beekeeping without hiring a great deal of help (and that took all the profit), I sold the forty acres that I lived on, at the time the accompanying picture was taken, for \$205 an acre, and bought ten acres about a mile from the original home. I built a new home, and planned near it my bee-yard. I planted 98 cherry trees between the house and honey-house. They are from 10 to 12 feet high now, at 3 years old, and this year some had five gallons of cherries on them.

The bees, however, did not do as well, and for five years I kept getting less and less honey. After investigating this I found there were too many bees in my locality—1150 colonies in all in a circle of three miles around me, so I could see it was time for me to do something or lose out. I scattered my bees out in different yards from three to ten miles from home.

I had about 200 colonies last spring. They increased to 400 colonies, and I got \$600 worth of comb honey and 14,000 lbs. of extracted honey. I put about 12,000 pounds of this in five-pound paper bags, and I got 7 to 7½ cts. a pound for it. There is more and more call each year for honey put up in this way. I had orders for tons that I could not fill this year.

Seven to twelve years ago when I was nearly the only one that kept any amount of bees I could count on \$10.00 to the colony, spring count. Now since others have crowded in, if I get \$3.00 to \$4.00 a colony I do well. However, by spreading them out I did some better last year, although it takes more time and expense to care for them. My wife and I and my son tended them this year, so the expense was not very great. I have an extracting-wagon with power to run the extractor.

Idaho is a good bee country, but it is getting badly overstocked for profit to the beeman.

Roswell, Idaho.

[Mr. Paine has promised us a set of pictures of his portable power-extracting outfit. These will appear later in the season.
—Ed.]

PRACTICAL QUESTIONS CONCERNING BEES KEPT PRIMARILY FOR FERTILIZING FRUIT-BLOSSOMS

FROM HERBERT MILES

What is the best apparatus for separating honey from the comb for use on a farm having from five to ten hives?

What is the best method of keeping the number of hives down to ten? Please understand, we have not time to practice any scientific methods of swarm prevention and processes of that sort, but we don't want to lose any swarms or weaken our present stands by too much swarming. What we want to do is build up permanent strong colonies that will produce the greatest quantity of fine honey each season for our own consumption and that of our friends and relatives.

The prime purpose for maintaining these bees is to fertilize our fruit trees, flowers, etc. We have 150 acres in the heart of Maryland, one-half under cultivation, the other half in woodlands.

There is no running stream very close to our bees, and the writer noticed a number of them drinking out of a cess-pool a considerable distance off in the field from the house, into which are drained the urinals, bath-room, and kitchen of the dwelling. I believe this is a dangerous proceeding, and one that is liable to carry infection not only to the bees but the people eating the honey. Of course, we have been told many times by scientists that water purifies itself after being exposed to the air and running a certain distance, and it would be difficult to cover the entire draining system from this cess-pool. The only other place for the bees to get water would be at the horse-trough or around the well-curb of the windmill. Can you suggest any easy and practicable arrangement to prevent the bees drinking at the cess-pool drain.

New York City.

[Under the circumstances we suggest that you keep all queens

clipped, clipping the two right wings even years and the two left wings odd years. This plan will automatically enable you to tell the age of the queens at any time.

Undoubtedly it would pay you to produce extracted honey, as the problem of swarm prevention in extracted-honey production is very small compared to the same one in comb-honey production. Use good shade boards if the hives are located out in the open, and make sure that there is plenty of ventilation, both at the entrance and under the cover in the hottest part of the hottest days. Use pieces of broken sections under the cover, one at each corner, to give a little ventilation at the top in the hottest weather. This will do much toward preventing swarming, but, of course, should be done away with entirely when the nights are cool.

THE HONEY BEE (*Apis mellifica*).
AND HER PRODUCTS.



QUEEN



WORKER



DRONE

The cover of the writing-pad sent out by the N. Y. State Bee-keepers' Association. See Jan. 15th issue, p. 69.

Follow the shaken-swarm plan for preventing increase. This takes only a little time, and effectually prevents increase beyond a certain point, if you so desire.

For an extractor we would recommend a four-frame non-reversible. This would be as large as you would ever need for ten colonies, and would be a very inexpensive simple outfit.

Bees must have considerable water, but

they use it in brood-rearing, no water ever being mixed with honey. Bees seem to prefer water that is briny or salty. If you locate a half-barrel close to your bees, and see that it is kept well supplied with water, you will very seldom see them obtaining water any place else. Use cork chips, or wooden floats, so that the bees can take the water readily without danger of drowning.

—Ed.]

BEES AND FRUIT IN ENGLAND

BY WM. J. WOOLLEY, JR.

I am a fruit-grower on a small scale. I rent five acres of land and "let off" half of it, as I employ no help except in the summer months, and I want only $2\frac{1}{2}$ acres. One acre is planted with established plum trees in full bearing. One acre I have had planted 12 months with young apple trees, and cropping in between with strawberries, narcissus, and other flowers, marrows, tomatoes, cauliflowers, etc., and the other half-acre is generally planted with potatoes, which do well there.

This last year (1913) the fruit crop in England was recorded in the trade papers as only one-fourth to one-half a crop on the average; yet in my holding, all the trees were loaded and some breaking down with the load of plums, with the exception of the Damsons, which bore only one-fourth of a crop. The trade papers mention three causes of the poor crop. 1. The fruit spurs on the trees were not well ripened, through the constant wet season of the year previous, and so were not able to carry their proper share of fruit.

2. The cold and wet period of 1913 when

the trees were in bloom so that the blossoms did not set properly.

3. The attacks of aphides, etc., which were very numerous through the season.

If those were the causes, why were my trees able to carry such a crop of plums? I had the same wet weather to contend with. My answer is, the thoroughness with which the bees fertilized the blossoms. On the few days they were able to work while the trees were in bloom, the weather being so changeable, the bees did not fly far away from home, and, in consequence, the trees nearest to the hives carried a grand crop of fruit. Only one mile from my apiary an extensive fruitgrower with every convenience and appliance confessed to me that the season with him was "rotten." He did not keep bees.

Do you not agree that every fruit-grower ought to keep bees? I believe that the bees would pay the grower in increase of fruit, even if he did not reap a good crop of honey as well. I find by experience that they pay me on an average \$5.00 in honey besides the good they do to the trees.

Evesham, England.

CONVERSATIONS WITH DOOLITTLE

Continued from page 90.

swarm, and then preventing after-swarming of the parent colony by placing it a foot or two away from where it originally stood, and in seven days, when the bees are flying freely, carrying it to a new stand, thus drawing most of the flying force in with the swarm, work will be resumed and continued in the supers without interruption, and the surplus be nearly as great as though no swarming had taken place. Contracting in this way throws the whole working force into the supers just at a critical time, and secures a crop of white honey that would otherwise have been frittered away by a continued effort at swarming, or used in the

rearing of bees that would have come upon the stage of action when about the only thing that they could do would be to consume much of the honey previously stored, and hang on the outside of the hive during the heat of late July and early August days. All know that *white* honey brings a higher price than does the dark honey gathered in the fall, while the latter, as a rule, is just as good for winter stores. The contracting of the brood-nest, when properly done, with an eye toward securing the greatest amount of the higher-priced honey, puts this white honey in the market and the cheaper grades in the hive for winter.

Heads of Grain from Different Fields

Is a Hungry Queen More Likely to be Accepted?

I have been much interested in your account of the smoke method of introducing. I have tried it a number of times the past season, and have failed but once, and that was in the case of a double hive. Afterward I noticed the partition between the two colonies had a crack large enough so the bees of the two hives could go back and forth. Whether this was the reason for the failure I do not know.

Do you think it would make any difference with the success of the method if the queen has fasted a few minutes before she is run in? There would be a few minutes when she would be without food if she were put into a cage alone, before we could get the colony in shape to run her in. Supposing the queen is received by mail with workers which would feed her, would she be as acceptable, in your opinion, as a queen that was a little hungry? No doubt you have had experience in this. I have not, as all the queens I have introduced by this method have been queens taken directly from my own hives.

Have you been as successful in running virgin queens into full strong colonies as you have with fertile queens?

Randolph, N. Y., Dec. 1. GEORGE SHIBER.

[Undoubtedly the leak between the two hives was the cause of the one failure that you report in the smoke method of introducing. A fasting queen, under ordinary conditions, will be more readily received by the bees than one that has been well fed. You will find the fasting method of introducing given in Samuel Simmins' book, "A Modern Bee-farm." A description of this same method will be found under the head of "Introducing," in our A B C and X Y Z of Bee Culture. Mr. Arthur C. Miller, however, the author of the smoke method of introducing, does not believe that it is necessary to go to the trouble to starve the queen before she is given to the bees. See his footnote regarding the fasting method as given in our A B C and X Y Z of Bee Culture.

Ordinarily it is easier to introduce a laying queen than a virgin three or four days old to a full colony. But a virgin just hatched can be more readily introduced than a laying queen. But when the smoke method of introducing is used, it does not seem to make very much difference whether the queen be a virgin or a fertile one.—ED.]

The Smoke Method of Introducing Used for Years

It is several years since I adopted the method of introducing queens by running them in at the entrance with a little smoke. If the bees then kill the queen they would also kill her if she was introduced under the best caging method. F. A. HOOPER.

Four Paths, Clarendon, Jamaica, B. W. I.

[The smoke method of introducing, as applied by Mr. Henry Alley, is very old; but Mr. Arthur C. Miller's modification of the Alley plan, so far as we know, is comparatively new. You will find quite a difference between the Alley plan and the Miller method.—ED.]

Combs Built in Sections Between Shallow Extracting-Combs

In the Nov. 15th issue, p. 805, I read the article by J. E. Hand on getting bees to work readily in comb-honey supers when producing section honey. I have made some experiments along this line with frames such as are used in N supers. I fill these with sections, and the sections with full sheets of foundation; then place these in shallow extracting-supers, alternated with shallow extracting-combs, making sure that the outside frames of the super are combs. If these section frames are left a few days, as described, and just over the brood-nest, or in a

strong colony, and over an excluder, the foundation will be found nicely drawn out if there is a fairly good honey-flow.

These section frames, with sections of drawn combs, can then be removed, and placed in section-honey supers, with fences between them, and then placed on any hive, when the bees will proceed to work on them at once if there is honey coming in.

I think if Mr. Hand will try this method, instead of drawing out sheets of comb, and cutting up, placing in sections, etc., as he describes, he will find the labor has been cut one-half without loss in principle.

Shellman, Ga., Dec. 6. D. W. HOWELL.

Should Winter Cases Project Below the Bottom-board?

I should like to know about using winter cases. I received one, and in putting it over the hive and leaving it an inch higher than the top of the hive it does not protect the lower part of the hive. Is it to be used that way, or should it go away down over the bottom-board and all, and an entrance cut in front?

CHARLES L. SOMMER.

North Tonawanda, N. Y., Dec. 3.

[We do not know what style of winter case you refer to; but the ordinary outside winter case that slips down over a hive will not cover the bottom-board and the entrance. The point of protection should be applied to the top part of the hive. If you are using a winter case that telescopes over the general body of the hive, it is usually advisable to remove the regular hive-cover, put on a super-cover, and then place on top several folds of newspapers, old carpeting, burlap sacks, or any kind of packing that will make a space of $1\frac{1}{2}$ or 2 inches over the top of the hive and around the sides. When these are carefully tucked down, the winter case is shoved over the whole, making a nice warm enclosure over the hive on the inside. The outside cover of the hive is then put over the winter case for the winter, or it can be taken inside of a building if necessary.—ED.]

Hundreds of Acres of Sweet Clover Sown for Pasture

In the Dec. 1st issue, p. 869, I have read the article by L. R. Witherell in regard to sweet clover. This clearly proves that he is either ignorant or prejudiced as to its good qualities. For 20 years I have been advocating it as an all-round better plant than alfalfa. I can show Mr. Witherell hundreds of acres sown to sweet clover for pasture, and more being sown every year. There is nothing as good as sweet clover for enriching poor land.

Salix, Iowa, Dec. 12. LEWIS LAMKIN.

Prospects Good in Jamaica

May be GLEANINGS readers will be interested to hear what the bees are doing in Jamaica. We are enjoying the finest November weather we've had for many years, making ideal conditions for the bees. It is sunshine and showers, not two days together when the sun has not shone. The bees are working on Christmas poppy (bell-flowers) and a profusion of minor bloom, many strong colonies storing well in supers, and the weakest getting enough honey to keep up brood-rearing. So favorable has been the fall weather that no drones were destroyed by the bees, so queen-rearing has gone on uninterruptedly, and fine full-sized queens raised.

Most apiarists have not had to feed an ounce of sugar; but, instead, have obtained a tidy surplus. This season is in marked contrast to that of 1912, when such wholesale losses were sustained by the flood- rains, and the crop was so much shortened.

With the bees at their present strength, or stronger when logwood opens next month, it is reasonable to expect a bumper crop and a big increase in bees to make good the losses of the past season.

The cool balmy air, soft yet bright sunshine, together with the healthy hum of the bees over myriads of wild flowers, all go to make one feel that it is good to be alive in this land of perpetual summer.

ARTHUR W. ROGERS.

Belvedere, Jamaica, Nov. 26.

Number of Colonies Needed per Acre in a Fruit Orchard

My brother and myself have about 200 acres of orchards of various fruits, and are interested in having plenty of bees to pollenate the fruit properly. There is an apiary about three-fourths of a mile east of me, and another about the same distance west, and a party in Toledo wishes to establish another on my place. I do not care to take on another business myself, but want as many bees in the vicinity as will thrive properly. Can you give me any data that will help me to decide how many that is?

Waterville, O., Dec. 22. W. W. FARNSWORTH.

[So far as we know there is no exact scientific data to determine the number of bees necessary for a given acreage of fruit trees; but we may say this, that more bees are needed in some seasons than others. For example, there may be a number of days while the trees are in bloom when it is cold, chilly, or rainy, so much so that bees can not fly. If there is only one or two flying days during the entire blooming time, obviously it will take more bees to pollinate the trees in a given acreage than if the weather is favorable for a week or ten days. On this account, therefore, it is desirable to have as many bees as you can get on the place or near it.

There is a forty-acre apple orchard about nine miles and a half north of Medina that was leased last year by Van Rensselaer & Southam. The former is an old experienced fruit-man, and he began pruning the trees, as the orchard had been neglected. He got in touch with us very shortly, and desired us to put as many bees in and near the orchard as we could spare. While there were quite a number of small apiaries in the locality, he wanted a yard of bees right in the orchard. We put in some fifty colonies of bees, and at the time he said he would be glad to have more if we could spare them, but as we had similar calls from other fruit-growers we were unable to supply them with any more bees. At the close of the season they harvested 16,000 bushels of apples from the 40 acres, and Mr. Van Rensselaer told the writer that he would not have secured as large a crop as this had the bees not been placed right in the orchard. He is a great believer in having plenty of bees close to the trees. See his article in this issue, p. 94.

To answer your question a little more specifically, we should guess that about one colony would be required to take care of an acre of fruit trees, but two or three colonies would do much better work if the weather is at all bad during the time the trees are in bloom.

We are convinced that the fruit-growers have not half appreciated the importance of having plenty of bees on the place. We are sending you a copy of our journal, *GLEANINGS IN BEE CULTURE*, for Aug. 15, and refer you to page 561 for the testimony of the Repp Bros. regarding the value of bees in an orchard. You will find further particulars in an article about these men in the *Country Gentleman* for May 24. While you are doubtless familiar with their fruit-growing operations, we suggest that you write to them, and ask how many bees they consider it necessary to have per acre.

There is another fact that might be somewhat interesting to you, and that is this: Last summer we visited the bogs of the Cape Cod Cranberry Company,

of Boston, Mass. The president of this company was very desirous that we should come and visit his place, which we did. He had discovered that, when they were growing cranberries in a very small way, the bees in the woods were sufficient to take care of the work of pollinating the plants, but when they began to increase their acreages of cranberries, then something was wrong, and they were not able to get the berries. He finally discovered that, by putting bees around the bogs, he was able to get the usual crop. He showed one bog of some ten or fifteen acres that had only about four or five colonies of bees. It was very evident, he said, that the fruit was much more abundant near the bees, and the yield began to taper off the further the plants were from the hives of bees, showing that the bees went to the nearest blossoms first. In other words there were not nearly enough bees to take care of the entire bog. We should judge from what we saw there that it would take anywhere from ten to fifteen colonies, or about a colony to the acre of cranberries.

For your two hundred acres there, it would seem as if you ought not to have less than 200 colonies, and we might suggest that it would be better to have these scattered over the orchard. You will be surprised in the increase in the amount of fruit if you will increase the number of bees. We have seen so many examples of remarkable results from such work that we wish to suggest that you get as many bees on the place as possible.—ED.]

Bee Space on Both Sides of Ventilated Escape-board

On page 887, Dec. 15, is a photo of Hodgson's escape-board. I made two Labor Day to try out. They are all right. I want no others, but I made them of copper wire, put the escapee with opening toward the outside, and had a bee-space on top of the wire as well as under it. I made the bottom piece $1\frac{1}{4}$ inches wide, $\frac{1}{4}$ thick; the top piece $1 \times \frac{1}{2}$ inches, and put the wire between. This makes a much stronger and better job—no brace combs. The bees go out much quicker than in the wooden ones.

Lestershire, N. Y., Dec. 29. JOHN H. RISING.

[We believe Mr. Hodgson also uses a bee-space on both sides of the wire cloth. Those which we have made in an experimental way were so constructed—viz., with a $\frac{1}{8}$ -inch cleat above and below the wire.—ED.]

Winter Disturbance

We have been thinking of storing our bees in a shed where an auto is kept. Do you think the fumes from a running car would be injurious to the bees? The car will be running from time to time.

Norris, Mont., Dec. 1. HADSON BROS.

[We do not believe that the going and coming of the automobile will interfere with the wintering of the bees. They will soon get used to it, so that, if it should arouse them the first time slightly, they will pay no attention to it later. We presume the shed is opened up in such a way that the bees would be protected from the prevailing winds.—ED.]

An Explanation

There is one item in the article by H. H. Root in the Dec. 1st issue that I do not want to leave as it is, and that is the statement of our honey crop for 1913. It was my intention that in connection with that report should go my statement that I knew of seasons when I never wet the extractor at all, or during the season did not wet it with white honey. I have blamed others, and justly, for giving one-sided reports, and I do not want to be an example in this direction myself.

Brantford, Ont.

R. F. HOLTERMANN.

Our Homes

A. I. Root

Thou shalt love thy neighbor as thyself.—MATT. 22:39.

Oh how I love thy law!—PSALM 119:97.

This is the condemnation, that light is come into the world, and men loved darkness rather than light, because their deeds were evil.—JOHN 3:19.

I have lately been having some business experiences that tempted me to think that a great part of the world (but not *all* the world, thank God) have just now a sort of craze to raise prices on every thing. Sometimes I have been tempted to think they tuck on a bigger price when I come around, because they have got it into their heads that I have plenty of money and am so good-natured that I would not make a kick any way; and as I got to studying over the matter—yes, this very morning—I said mentally, “Oh how I love good honest people—people who *really* love their neighbors *almost* as well as themselves!” I did not put it as it is in the text, “as thyself,” for I feared that *that* would be expecting too much of any of us, good or bad; and then I reflected that if there were not any greedy or grafting people in this world we would not fully appreciate the honest ones. Yes, thank God, there *are* people (and quite a lot of them) who do not charge as much as they really ought to. I have in mind one good friend who is a sort of drayman who delivers goods from the railway station and otherwise. Several times I have laughingly told him that he did not charge *enough* for his bother and trouble. Now, this man has lately united with the church, and he began putting his Christianity into practice by just this sort of thing—working so cheaply that many times his customers laughingly remonstrated with him. Perhaps the dear old soul will see what I am writing on these pages. Well, while this whole thing was passing in my mind I thought of David's speech or *prayer*, or we might almost call it a *prayer*, “Oh how I love thy law!”

Dear friends, I am having a lot of kind words. I think they come every day of my life, and sometimes they seem so extravagant that I hesitate to put them in print. Right before me is a letter that caps them all, and it comes from a man away up in public service. He is president and general manager of an electric railway company in a city of something like 30,000 people. You will note his reasons for having his name and address kept out of print. His reasons, briefly summed up, seem to be that he is already having about as much trouble in his efforts to encourage righteousness as he can well bear; and if I should give his name

in full, and tell *where he lives*, he might have more trouble yet.

His request for a French bee-journal has been complied with; and may the Holy Spirit be with him and sustain him in his battle for the right, and may God be praised for the victories that have already come in consequence of the brave standout from one single individual with heavy responsibilities on his shoulders. Will the readers of GLEANINGS unite with me in a prayer for the writer of the letter below?

I wonder how many large cities in this nation are being managed as outlined below.

The A. I. Root Company:—I read French, and would appreciate it very much if you could send me a copy, even if it is an old one, of a French bee paper corresponding as nearly as possible to GLEANINGS. You must have a number of these among your exchanges. If I like such a paper, I am considering subscribing for it.

I am also enclosing a little expression of appreciation of Mr. A. I. Root, which, perhaps, you would like to print for your own good. If you do, however, please leave out any reference to the city mentioned or the author, as I am not looking for any more trouble than I already have.

AN APPRECIATION.

For the last six years I have been reading GLEANINGS, and I appreciate it more every year. Because I happen to be the head of a public-service company which, like all other companies in the same line of business, seems to be continually embroiled in strife and trouble with politicians, I could not understand how it could be possible for any business to exist where there seemed to be peace and happiness and a spirit of Christianlike tolerance and forbearance. Why, in the bee business even rival bee-papers speak kindly of each other—a condition which is entirely too good to be true. And then all of the bee-papers interpolate their reading-matter with the real spirit of Christianity, and with talks on temperance and kindred subjects. I am afraid that at first I read GLEANINGS mainly out of astonishment and curiosity. I have kept bees in a small way, and have gotten a little honey every year; but I have a greater satisfaction than the amount of honey I get in the knowledge that I am engaged in a pursuit which seems to be entirely free from petty jealousies and personal strife. I have particularly enjoyed Mr. A. I. Root's temperance talks—not that I am a teetotaler, for I was born and brought up in a wine-growing country of Europe, and I have a sort of sympathy for the product of the grape; but I admit that every single thing that Mr. Root says about intemperance, whisky, and the whisky gang is absolutely true. Placed in such a position as mine, with hundreds of men in my employ, I know the evil of intemperance among workingmen. Several years ago, about the time I first took GLEANINGS, I issued an order forbidding all employees to enter saloons or to take any intoxicating liquors; and I am inclined to credit Mr. A. I. Root's talks with stiffening my backbone for the purpose. We had to lose some good employees before they realized I meant it; but others took their place, and by strictly enforcing this rule we to-day have an organization of employees in our electric railway, electric light, and other public service, which is probably better emancipated from the curse of intemperance than any other similar organ-

ization in the country. The saloon element rose up in arms against such an order by boycotting my company. They boycotted the cars, would not use electric light, would not have any dealings with the company unless they were absolutely compelled to. But we stuck to the order, and have prospered in spite of the opposition of the saloon element. This same saloon organization controls the politics of our city, and they elect their own mayor, sworn to enforce the laws, and he enforces them so well that saloons are open day and night, Sundays, holidays, election days, or any other day. On any pleasant Sunday or holiday, citizens may have the pleasure of seeing "His Honor" (!) seated at a round table in the back room of some saloon, guzzling beer with his boor companions. You may rest assured that that kind of mayor has used every effort in his power to annoy a public-service company, so utterly regardless of the ordinary amenities of politics as to dare oppose the gang in power—the gang in this case being the saloon men. Naturally there has been a time in this city about as cheerful and entertaining as the proverbial Donnybrook Fair. The brewers, the saloon men, and their friends are a crafty lot of individuals. Few people realize the enormous power of the liquor element in politics. If they did, the whole gang would be wiped out in one election. Some very level-headed thinkers have been of the opinion that much of the hue and cry against public-service corporations has been skillfully engineered by the liquor interests to draw attention away from the ulcer of their own existence. In the midst of this turmoil, and the mud of political campaigns involving saloon men, it is and has been a pleasure to receive GLEANINGS twice a month, and go through its pages reading of the clean, honest business conducted in a clean and honest way, and capped by the kind observations and comments of your Mr. A. I. Root.

FROM NEAR "THE LAND OF THE MIDNIGHT SUN;" A VERY KIND LETTER FROM A NORWEGIAN SCHOOLTEACHER.

Dear old Friend:—Of course you have long since forgotten me; but I often think of you, especially among my bees, and every time when GLEANINGS flies into my house; also among my poultry I think of you.

Since you are in my eyes an old brotherly friend, whom I should so like to see, I will make bold to ask you a favor. Many of our newspapers speak of a new plant as an exceeding blessing to manhood, going to supplant the potato. They call it dasheen. I. S. Young told me of you. He is dead now. Now, I should like you to send me a little seed, and at the same time tell me how it is planted, and when and how it is treated, and when it is ripe. The newspapers say not only the root is excellent, but also the leaves, stewed like salad. Both also are good for cattle. Are the roots cooked or fried? or both, like the potato? The bags you put it in must be strong, so that the seeds may by no means be mixed up.

You know schoolmasters don't earn much, and I have eight children to educate, so my little part of Norway (exceedingly picturesque) costs me only 280 English shillings (\$70.00), and consists of wood, mountain precipices, debris, and oak roots; but now I have cleared it myself, with the assistance of my wife and children, and have two fruit trees and ever so many bushes and a kitchen garden. If what these three American plants or grasses promise holds good I might also easily have a cow (or even two), which would be a grand thing.

My three oldest sons go in for the agricultural line, so you see what way my interests go along with teaching children, which is by far the most beautiful and blessed calling of all in life.

My oldest son is just now with two empty hands, but a life and heart full of good will; and after having passed his agricultural examinations with the very greatest distinction, he bought a farm of his own; and if now these American plants hold good, you know what a blessing it would be to him as well, if I give him part of what you send me. Of course, I shall pay your outlay. His farm cost 24,000 English shillings (\$6000), and he has but 3000. Fancy, then, how the poor fellow will have to work.

Perhaps you think, like others, that Norway is a country high up under the pole, with "ice bears" in the streets. Well, if you do, to undeceive you I will tell you that here in the South our gardens are as full of the most splendid apples, pears, plums, etc., as ever you saw, and myself and another man here get ripe grapes and peaches and apricots every year on free land; therefore I don't think you need fear your seed would not thrive. To-day, Sept. 12, we have 73 degrees Fahr. in the shade (no sun in the sky to-day, otherwise it would be still warmer), and the water in the "fjord" (bay) is 72 Fahr. It would give your heart joy to see how happily and tidily people live in their little houses, and how the weest spot of ground among the mountains and rocks, by means of stone walls, is made into a garden with fruit-trees and flowers, often no bigger than 5, 6, or 8 feet square, and even less than that. Indeed, so rocky is this part of my glorious fatherland that there is not a single garden about the town but is now, by means of stone walls, built up 15 feet high to get a patch of garden no bigger than the floor of your own dining-room. You never saw the like; but if you once have such a little spot, whatever you plant grows most beautifully, and the steep mountains around absorb every ray of the sun and make it very warm, day and night; and as the nights are very light even here in the south you can, if you will strain your eyes, read your newspapers at twelve and one o'clock at night in your garden about the middle and end of June. The plants grow day and night as well. Such a country, with so much stone and so little earth, must needs be poor; but as the nation is enlightened and gifted and pious and striving, you never see extreme poverty as you see in the rich countries.

I do believe the word of God thrives nowhere so well as in the valleys of Norway, and perhaps you will think I speak right when I tell you of our missions among the heathen. We carry on missions in Zululand, Madagascar, Santhalistan, China, besides among the Jews, and a minor mission in our own country. Well, the statistics some 20 years ago (and I feel sure it is the same yet) said that Norway alone ($2\frac{1}{2}$ millions of inhabitants) gave as much to the mission as Sweden ($5\frac{1}{2}$ millions of inhabitants) and Denmark ($2\frac{1}{2}$ millions), and half of Finland ($2\frac{1}{2}$ millions of inhabitants), put together. May I not be proud of such a fatherland, for Sweden and Denmark, at least, are ever so much richer countries than Norway. Norway is, perhaps, the most democratic country of Europe. Indeed, since 1827, nobility and gentry are forbidden by law. We are Lutherans; and in all the country there are but a hundred Jews or so, and but 1100 Roman Catholics, which is a most happy state of affairs.

Formerly our people were very much given to drink; but during the last thirty or forty years the nation has made such violent efforts against this unhappy habit that there is now but one country in Europe that consumes less spirits—viz., Finland. I am more than happy to say that, like their father, my three grown-up sons (28, 27, and 19 years) have not been under the influence of wine a single time in their life, which is much; for when young fellows come together in Norway their first thought is whisky. I think it is all owing to a tale out of my own brave, unselfish father's life. He distinguished himself so much serving as a soldier that two lieutenants and one captain in the army offered to send him to

the military high school some years and make a lieutenant of him. He was as poor as a church mouse, and would have been ever so happy to accept this grand offer; but he was engaged to my sweet mother; and because he was the man he was, he saw a chance to marry pretty soon, and said "no," much to his regret afterward, when we children came. Well, one of these lieutenants had confided to him a most exceedingly important key. What should happen? My father attended a party and got intoxicated; and, going home in the pitch-dark night, heard the key falling down somewhere as he pulled out his pocket-handkerchief. He lay down in the greatest anxiety, groping for the key, when a man came that way—the very lieutenant who had given him the key, and would have paid for him for years. He lighted a match and helped father, who felt nearly sober from fear and despair. Of course, father expected to be scolded and arrested, and was miserable for days. But the lieutenant (God bless him for his heart and deep understanding of his fellow-man) gave him back the key and never uttered one word of anger or reproach. My father then swore a holy oath. "It was and is to be the first and last time in my life," and he kept his word till he died, 72 years old, as an "over custom-house officer," as we call it, in the king's service. This tale and his long life of sacrifice for his children (we were eight—4 s., seven sisters and a boy) made such an impression on me, his only boy, that already, 14 years old, it was as clear as day on my mind that I could not live through the day when my father should be compelled to lower his eyes before the world for the sake of his boy. And as my father kept his promise holy, I have kept mine. And now my three boys have stood out brave after us two, although they have been tempted enough. I have not been able to give them pocket money worth speaking of. Well, at a party some young fellows, some 20 and 22 years old, laid 12 English shillings on the table to my boy if he would drink a glass of pure whisky. He did not touch it.

Bees are doing well this year. In my district we have the weather to rely on. Once I put my hives on the scales every day a week. My best colony once carried in 8 pounds.

My parents allowed me to keep hens, as I was but seven years old, and I have gone on with them since then. I thank my prudent parents in their graves; for, thanks to this intense love of animals, which sprang up then (I have or have had hens, geese, turkeys, ducks, canaries (hatched them), sheep, goats, doves, rabbits, peacocks, swine, and even once for some weeks a horse). I have been sticking to my home and poultry-yard and garden every leisure hour of my life. You should see me and my boys mining, shooting, and building terraces in the rocks every spare hour, and digging and manuring the garden. Well, the trees are yet small, but yet every inch of the floor of a middle-sized room is to-day, Sept. 22, covered with apples, and the pears are yet on the trees. There are joys and blessings in the footsteps of work.

I believe mostly in hens and geese, and wish I could afford to buy a reliable incubator that would hatch these two sorts of eggs; but I can not nor dare buy one for fear it might be a failure. I once made bold to buy a machine for grinding or cutting bones for my poultry; but it was quite an impossible thing, and I had to throw it away as rubbish. Incubating under hens is all right, but it can not come to much, which is a pity for a man without neighbors, and with a place where chickens of all sorts may roam about as much as ever they like. There is a rivulet going through to a little pond in my garden.

If I get a photo of "Min lill vea mellanbergan" (my little nook among the rocks), as it runs in a most beautiful Swedish song, I shall have pleasure

in sending you one. Perhaps you will shudder to see people building their houses like birds' nests among the precipitous rocks; but we live happily there, I assure you, and our animals with us; and such beautiful views, your heart would leap with joy to see them, and you would fold your hands in prayers and thanks to the great Lord who made this grand earth. You should see the lovely farm my boy has bought, and will now try to hold good with his two empty hands. A workman in Norway lives more beautifully than a prince in foreign countries as regards the view. I am now trying to get him some calves and one cow, for he has ever so much hay, poor boy, and not a single cow. Now you are tired of me long ago; but you see you talk to me in every GLEANINGS, and I never speak to you. My motto has been all through life, "All or nothing," a whole man in every thing, or, as a Norwegian saying runs, "Not det skal vere jul, skal det vere jul," i.e., when it is to be Christmas, then it is to be Christmas—i.e., nothing by halves. I shall wait ever so long, perhaps, before I write to you again; but if I do write, I will send you only two lines. If you send the seed I shall have to thank you in my own name and that of my noble boy who is fighting his battle like a man. It is hard at times; but upon the whole I know for certain, for I have seen much of the world—one year at Oxford, on year at Paris, and two years and a half as a teacher in a German grammar school near Dresden, Saxony, living in such a poor country. If my boy could get 2000 shillings he could buy a magnificent island covered with plenty of wood and with excellent pasture, only 15 minutes from his home—an island which it took me fully an hour to row around in a boat this summer; so you see land may be cheap in Norway, and a man may have his chances even here; but what is the use of it when money is so scarce!

HAROLD HOVIND, M. A.,
of the University of Christiania, Head Master
of the High School of Tvedstrand.
Tvedstrand, Norway, Sept. 15.

Our readers will notice that we print the above letter substantially as it came. Our good friend's phraseology, coupled with his many kind words, makes it seem almost as if we were visiting in and around his northern home. If I were not so well along in years I should be tempted to take a trip to Norway. It seems he was a friend and acquaintance of the late Ivar S. Young, the big Norwegian who paid us such a friendly visit many years ago.

My good friend, I can not understand why your bone-cutter was a failure unless it is because it is too hard work to grind bones.

I would not advise you to undertake to hatch hen eggs and goose eggs at the same time together. Although it has been done, there are several reasons why it does not pay. The manufacturers of our best incubators do not recommend it.

If I am correct, your locality is one of the best spots on earth to see real high-pressure gardening. May God speed you, not only in agriculture, but in temperance, righteousness, and in spreading the gospel

High-pressure Gardening

PRODUCER AND CONSUMER — SAVING YOUR OWN SEED.

Just about a year ago I wrote about my troubles in getting seed of sweet corn to plant here in Florida in December. Before I could get any I sent to three different seed-houses. The first, after considerable delay, said they hadn't yet got in their seed; the second didn't list the corn (Golden Bantam) I particularly wanted; and finally I sent to one of the great seed firms in the North, and had my order promptly filled; but although the Bantam came up, almost every seed of the Black Mexican, in a row close by, gave only here and there a plant. I advised the seed firm to look after their Black Mexican, and test before time to plant in the North. Never a word in reply; but several of our readers called my attention (as you may remember) to the fact that the Bantam, not being a sweet corn, is more resistant to cold, etc. I accepted this explanation, but yet I did not quite excuse the seed firm for entirely ignoring my courteous letter. I finally succeeded in growing a fine lot of green corn. *The neighbors* said that it was the best they ever ate; but on account of delays I have mentioned, it matured just *after we went North*, about April 20.

Now we are ready for what I have to tell you. When our nice sweet corn was at its best in Ohio (that I have told you about) I tied strips of cloth to certain stalks to be reserved for seed; and when the ears were finally mature I dried them out back of the stove, and brought three kinds down here—Bantam, Mexican, and Evergreen, planting all three side by side in November. All three came up, every kernel, apparently Black Mexican just as well as the Bantam. How much is it worth, friends, to have *good seed* that you *know will grow*? Let us go a little further.

For some time past I have got into the habit of using more seed than is needed, proposing to "thin out" the plants at the proper time; but there are *three* serious objections to this plan: It takes a lot of time; it is often neglected; and, besides, the small plants are hindered by coming up too thick. Down here we plant in drills because the fertilizer can be worked in so much better with a hand cultivator. Well, with my own good seed I placed just one grain of corn to about every foot of drill; and as I look out of the windows while I write I see my corn about a foot high, no crowding, and no *missing hills*; and it is so easy to hoe and

cultivate that not a weed can be found. Don't you think that "growing your own seed" will be another "short cut" between "producer and consumer," and a great saving of loss and disappointment? The manager of the great onion-farms in Ohio declare they *must* grow their own onion seed. They get far *better seed*, and seed they *know will grow*.

DASHEEN—WHERE CAN THE SEED BE PURCHASED FOR PLANTING, ETC.?

So many are inquiring, I have thought best to copy, by way of answer, the advertisements below, taken from the *Florida Weekly Grower* (Tampa, Fla., \$1.50 per year).

TRINIDAD DASHEEN.—Edible, wonderful yield. Very decorative. Send 25 cts. for sample tuber and directions. DR. H. A. SMITH, Samville, Fla.

DASHEEN FOR SEED FOR SALE.—\$4.00 per bu.; quick delivery; choice stock.

MRS. R. P. BURTON,
800 So. Willow Ave., Tampa, Fla.

THE DASHEEN.—The South's substitute for the Irish potato. Very productive. Have yields up to 500 bushels per acre. Successfully grown from the Carolinas south. Plant here beginning February 1, and until April further north; seven months to mature. Cultural directions sent with seed; cooking directions with cooking tubers. Seed \$4.00 per bushel, f. o. b. Write for prices on five-bushel lots or over. Cooking tubers, \$2.00 per bushel f. o. b. (Reference, *The Grower*.)

THOS. PORTEUS & SONS,
Rt. 8, box 126, Ybor City, Fla.

Besides the above, Crenshaw Bros. Seed Co., Tampa, in their new seed catalog advertise "1 lb., 25 cts.; per bushel, \$4.00." Of course, the above are all small tubers for planting except where noted. The big "corms for cooking" are cheaper. From Brooksville I have an offer as below:

DASHEEN SEED.—\$8.00 per bushel; \$2.50 in five-bushel lots or over. GEO. KITCHEN, Brooksville, Fla.

DASHEEN TUBERS FOR PLANTING OR FOR TABLE USE. Two of my neighbors, Mr. Ault and Mr. Harrison, have a limited amount of dasheen which they grew from seed I furnished, which they offer as follows:

Single pound, 10 cts.; 10 lbs., 80 cts.; 25 lbs. ($\frac{1}{2}$ bushel), \$1.75. The above are for small tubers for planting; larger ones for table use, one-half above prices. Your postmaster can tell you how much to send in addition to the above for postage if wanted by parcel post. Address Arthur E. Ault or C. L. Harrison, Bradenton, Fla.

BUYING LAND IN FLORIDA; SOME "BOILED DOWN" COMMON SENSE IN THE MATTER.

I clip the following from the *Times-Union*:

Don't buy land till you have actually seen it in person, and made the acquaintance of a few people (in the vicinity) who have no land for sale.

I have two swarms of bees, and took off 250 lbs. last season.

Grand Haven, Mich., Jan. 15. I. N. TUBBS.



Ellis Hall, Athens, Ohio, where the Ohio convention is held. See program below.

Convention Notices

The regular meeting of the Kansas State Beekeepers' Association will be held at the Commercial Club Rooms, Topeka, Feb. 26, 27. All persons, whether beekeepers or not, are cordially invited to attend. The meetings will close with a banquet on the afternoon of the 27th.

Topeka, Kan., Jan. 20. O. A. KEENE, Sec.

The annual meeting of the Pennsylvania State Beekeepers' Association will be held in the Capitol building, Harrisburg, Pa., Feb. 20, 21, 1914. It was decided to hold the meeting in Harrisburg on account of train service, and the city being more centrally located. A good program is prepared. Everybody welcome.

H. C. KLINGER, Sec.
Liverpool, Pa., Jan. 20.

A district beekeepers' convention will be held in the county council building, London, Ont., Feb. 12 and 13, with the following program:

THURSDAY.

1:30 P. M.—The use of steam in the work, Prof. Denis Nolan. Wintering Bees, James Armstrong, Chesapeake.

7:30 P. M.—Marketing honey, Prof. Pettit, O. A. C., Guelph. Spring Management, John Lund, Elgin.

FRIDAY.

9:30 A. M.—Extracted-honey production, R. F. Holtermann, Brantford. Queen-rearing, Wm. Elliott, Adelaide.

1:30 P. M.—Beekeeping Appliances, W. A. Chryssler, Chatham. Question-drawer, John Newton, Thamesford.

A cordial invitation is extended to every one to come and make this a good convention.

Lambeth, Ont., Jan. 20. E. T. BAINARD.

PROGRAM OF THE OHIO BEEKEEPERS' CONVENTION TO BE HELD IN ELLIS HALL, OHIO UNIVERSITY, ATHENS, FEBRUARY 12, 13.

THURSDAY, 1:00 P. M.

Address of welcome, Dr. Alston Ellis, President of Ohio University. President's address. Report of Secretary. Report of Treasurer. Report of Chief Inspector of Apiculture. "Swarm Control," O. J. Jones, Urbana. "The Swarming Instinct," E. R. King, Creola. "Soft-candy Feed," Dr. Burton N. Gates, Amherst, Mass.

THURSDAY, 7:30 P. M.

Music. "Short Cuts in Preparing for the Honey-flow," H. H. Root, Medina. "Apicultural Progress with Plans for 1914," Dr. Burton N. Gates, President National Beekeepers' Association and Prof. of Beekeeping in Massachusetts Agricultural College.

FRIDAY, 9:00 A. M.

Music. "Wax Rendering and Refining," D. H. Morris, Springfield. "Sac Brood," J. E. Venard, Wilmington. "Some Recent Findings in Brood-disse Suppression, Dr. Gates." "Producing a Crop of Extracted Honey," J. F. Moore, Tiffin.

FRIDAY, 1:00 P. M.

"A Hive Standard," Dr. Gates. "Short Cuts in Extracting Honey," H. H. Root. General discussion. Athens, O.

W. A. MATHENY, Sec.

NATIONAL BEEKEEPERS' ASSOCIATION CONVENTION, ST. LOUIS, MO., FEBRUARY 17, 18, 19, 1914.

The annual convention of the National Beekeepers' Association will convene at the Planters Hotel, St. Louis, Feb. 17, 18, 19, 1914. The first session will be held Feb. 17 at 10 A. M. A large hall and office rooms have been provided at the hotel.

The following rates on the European plan have been granted to the beekeepers and their friends:

FOR ONE PERSON.

Rooms without bath, \$1.50 to \$2.00 per day; rooms with bath, \$2.50 to \$5.00 per day.

FOR TWO PERSONS.

Rooms without bath, \$2.50 to \$3.00 per day; rooms with bath, \$3.50 to \$7.00 per day. For each person over two in a room, \$1.00 additional.

The Planters Hotel is one of the finest in the city, and guests will be nicely taken care of.

It is hoped that this convention may prove one of our old-style gatherings, where we meet many of our old friends and make many new ones. All meetings will be open to all the beekeepers who will come, whether members of the Association or not.

What is needed is a large attendance. Let the beekeepers rally and make this a rousing gathering, such as we had in 1909, during the World's Fair. Bring your wife and daughters. St. Louis will try to make it pleasant for all.

There will be room in the hall for exhibits if any manufacturers or beekeepers wish to show, or adjoining rooms can be had if desired.

ROBERT A. HOLEKAMP,
President St. Louis Beekeepers' Club,
4263 Virginia Ave., St. Louis, Mo.

PRELIMINARY PROGRAM

The headquarters of the National Beekeepers' convention will be Planters Hotel, where the meetings will be held. Those wishing hotel reservations may request the Secretary, Mr. E. B. Tyrrell, 214 Hammond Bldg., Detroit, Mich., to assist them.

Some of the peculiar features of this convention may be outlined. Arrangements are pending for the use of the new moving-picture film relating to bee-keeping. The showing of this film will possibly be in a moving-picture theater.

An attempt is being made to procure ample space for displays of manufacturers, dealers, and inventors of new appliances. Those intending to make displays should communicate with the secretary.

The meetings of the convention will be divided as found requisite, devoting time to the reading of the numerous important papers as well as to the transaction of business by the delegates.

It may be announced to the delegates, however, that a number of vital and important problems confront the Association for action. Every affiliated society should, if possible, be represented by a delegate. Otherwise send communications and instructions to the secretary.

The program as announced below is preliminary, and is subject to change. An effort has been made, however, to secure the very best talent available in the country and abroad. In the absence of authors of papers, the contributions may be read for the writers. Any suggestions or additions will be appreciated.

TUESDAY, FEBRUARY 17.

9:30, opening session. Seating of official delegates. Appointment of committees as well as routine business will be prosecuted in due form. "Suggestions for the Betterment of the National," Editor E. D. Townsend, Northstar, Mich.

1:00 P. M. Session for discussions. (Since the program is constantly growing, final arrangements are not yet possible. The papers offered are, therefore, grouped and listed below.)

7:00. Business session.

8:00. Lectures with the lantern.

WEDNESDAY.

9:00 A. M. Business session, with papers as time may permit.

1:30 P. M. Short business session.

2:00. Discussions and papers.

7:00 P. M. Business session.

8:00. Lectures.

THURSDAY.

9:00 A. M. Business session, followed by papers as may prove possible.

2:00 P. M. Closing session. Final adjournment is subject to the business program.

PROGRAM OF PAPERS AND CONTRIBUTIONS SUBJECT TO ARRANGEMENT.

Apicultural Education and Promotion.—"The Question of Apicultural Education," Prof. Morley Pettit, Guelph, Ontario, Canada. "Developing the Industry," Mr. Frank C. Pellett, Atlantic, Iowa. "Modern Business Methods Applied to Beekeeping," Mr. F. B. Cavanagh, Hebron, Ind. "Organization of the Beekeepers," Mr. Jenner E. Morse, Saginaw, Mich.

The Queen Business.—"Direct Introduction of Queens," Mr. J. M. Buchanan, Franklin, Tenn. "Selective Breeding," Mr. George B. Howe, Black River, N. Y.

Beekeeping by Localities.—"New Jersey Beekeeping," Prof. T. J. Headlee, New Brunswick, N. J. "Honey Resources of New Jersey," Mr. E. G. Carr, New Egypt, N. J. "Californian Beekeeping Up and Down to Date," Mr. J. D. Bixby, Covina, Cal. "Beekeeping in Southern California," Mr. Homer Mathewson, Binghamton, N. Y. "History of Beekeeping in California," Mr. J. E. Pleasants, Orange, Cal. "Development of Apiculture in Oregon," Prof. H. F. Wilson, Corvallis, Oregon. "Beekeeping in Europe," Mr. C. P. Dadant, Hamilton, Ill. "Making a Market for Five Hundred Cars of Western Honey," Mr. Wesley Foster, Boulder, Col.

Wintering.—"Building the Perfect Bee-cellary," Mr. E. S. Miller, Valparaiso, Ind. "Humidity in the Wintering of Bees," Dr. E. F. Phillips, Washington, D. C. Others to be announced.

Special and General Subjects.—"Restoring the Soil Fertility and Producing Honey," Dr. H. A. Surface, Harrisburg, Pa. "The Secretion of Nectar," Dr. F. W. L. Sladen, Ottawa, Can. (Subject to be announced), Mr. J. J. Anderson, Salem, Ida.

"Moving Bees from the North to the South for Increase," Mr. E. R. Root, Medina, O. "Bee-keeping as a Money-making Proposition," J. J. Wilder, Cordele, Ga. Subject to be announced, Prof. Wilmon Newell, College Station, Tex. "Automatic Recording Instrument," Prof. C. E. Sanborn, Stillwater, Okla.

Remember there are other papers to be presented, but which can not yet be announced.

All interested in bees, especially ladies, are cordially invited to attend the meetings. The sessions are open to the public. Business sessions, however, are participated in only by delegates.

Amherst, Mass. BURTON N. GATES, Chairman.

Kind Words from our Customers

THE MISSION WORK AMONG THE HIGHLANDERS OF KENTUCKY.

Among the many things I have to thank God for is the one of being in touch with the great and good men and women of the present age. Before I submit a "kind letter" from one of these I want to introduce him by an extract from a sermon by DeWitt Talmage entitled "Bloody Breathitt."

Many years ago a soldier in Morgan's Confederate army rode over the mountains of the South. There for the first time he came in touch with the misery and ignorance and the nobility of the mighty Highlanders. After the war was closed, this brave soldier of war entered theological seminary and became a soldier of the cross. Called to one of the chief pulpits of Louisville, he felt that barrack duty was not the place of honor. He longed for the picket line. He wanted to fight at the front, as he did in Morgan's brigade. Called to be a synodical missionary, at once he accepted the appointment.

As the synodical missionary, his thoughts immediately turned to the place of the greatest want and wretchedness, to the Highlanders of the mountains. He organized church after church. He sent missionary after missionary into these hills. Then the synod met and began to count its money. Little money was there. Then the officers of that synod ordered this synodical missionary to retrench, and not to build so many churches and schools, as they could not afford to pay for them. Then a wonderful thing happened—wonderful because it was so simple in a man of great faith.

Doctor Edward O. Guerrant resigned as the synodical missionary. Before that synod he uttered these words: "Brethren, if you can not afford to pay for the schools and churches and the missionaries for the poor Highlanders, God can pay for them." Doctor Guerrant went back to his home in Wilmore, Kentucky. There he knelt and asked God for help. The money commenced to pour in. Church after church has been established. School after school has been built. Missionaries after missionaries have been gathered for these fields. The orphan children were gathered into a home. Though wonders have been accomplished by this man of prayer, yet only the outer edge of the harvest has been gathered.

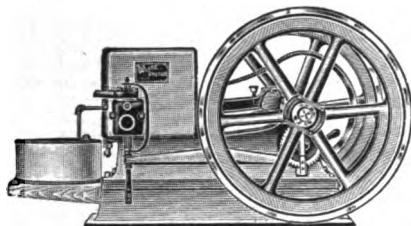
My Dear Mr. Root:—My friend and neighbor, Mr. DeVault, takes your interesting magazine, and was kind enough to let me read your last number, and especially your article on the sorrowful condition of the poor people in New Jersey, etc. I am glad that such people have such a friend, and hope that God will raise up many more. I take pleasure in enclosing you some information of another class of our poor countrymen, who, though poor, are not degenerate, and still retain many of the noblest traits of their ancestors. Gen. O. O. Howard was my friend, and twice honored us by visiting our home in Kentucky, and traveled with me to many of our missions among the Highlanders. If I were at home in Kentucky I should be very glad to send you his graphic account of his tour among the Highlanders. I am spending a few months here, during our cold weather in Kentucky.

With assurances of my kindest regards and best wishes, and begging an humble place in your prayers, I am sincerely
Your brother and servant, EDW. O. GUERRANT.

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DON'T break your back or waste time doing an engine's work. . Iron and steel are cheaper than muscle; and kerosene oil, cheaper than time. I furnish the power of 10 men's work for 3½¢ an hour; 30 men's work for less than 80¢ a day, cost of engine included.



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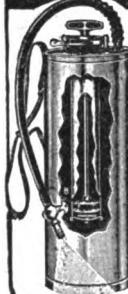
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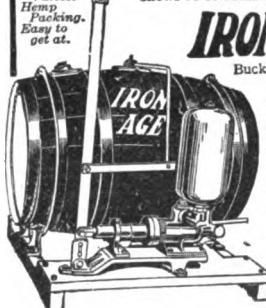


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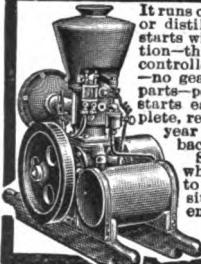
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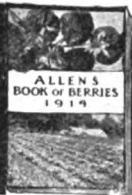


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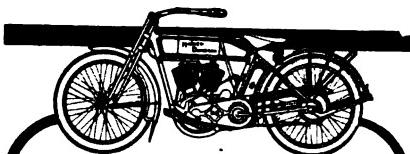
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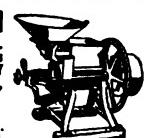


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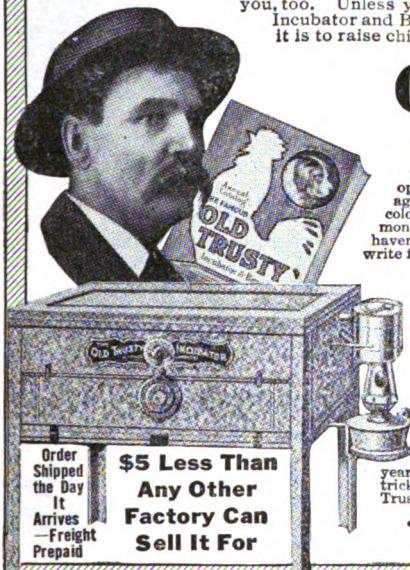


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Wouldn't you like to know how easy it is to have chicken profits pay the grocer, the butcher, the coal man and the horde of others who seem to be shareholders in your pocket-book? Let the chickens make your living and save your other profits. How to do it is fully told in the Old Trusty Book. It is from this book that half a million people got their ideas on making big profits with chickens. Let me send it to you, too. Unless you have actually used an Old Trusty Incubator and Brooder you can have no idea of how easy it is to raise chickens in big numbers.



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That's because it's so simple—practical and easy to operate and because the Old Trusty gets biggest average hatches for beginners as well as old timers, in coldest weather or warm weather, in every locality, month after month, year in and year out. Even if you haven't thought much about making more chicken profits write for the Old Trusty book anyway. I just want you to see how easy and simple the whole thing is. You do not have to drop doing anything else—you do not have to wait until you get the time, and you do not have to worry over a string of high-falutin' instructions. Start any time—but start *right*, with the *proved* hatchery. Don't buy only on price. Investigate and use your own reason.

I Guarantee the Old Trusty to Do Its Part Or You Trade Back

and I'll give you 30 to 90 days' free trial and a 20 year guarantee. Now is the time to start. It's no trick to make big hatches in cold weather with the Old Trusty. Get the Old Trusty Book—learn about it. Address

JOHNSON, INCUBATOR MAN
Clay Center, Neb.

You Can Try This Buggy 30 Days FREE

I Guarantee It for 2 Years

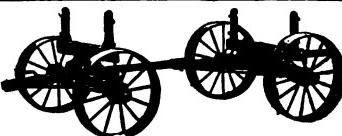
You can have any buggy I make on the same plan. Nearly 200,000 people have bought buggies from me direct. I have saved from \$25 to \$40 on every Split Hickory vehicle they bought.



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140 pages, beautifully illustrated book—150 photographs of 125 styles of vehicles. Don't delay. Write for it today. Address

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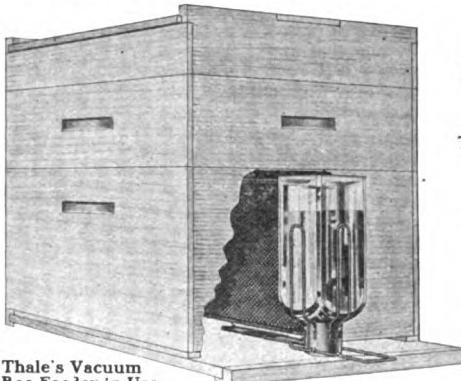
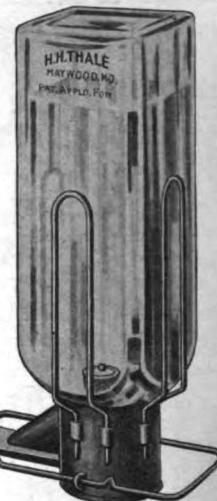
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Thale's Regulative Vacuum Bee Feeder!

MOST perfect stimulative feeder ever constructed. It feeds inside underneath the cluster, and will fit any hive made. To fill feeder, lift off empty bottle and set on full one. It is so regulated by the slide from the outside of the hive to feed any amount that you may want the bees to have in one day. If you set it on one-half pint in one day the bottle of feed will run four days and nights and can be increased or decreased from the outside of the hive without disturbing the bees or moving the feeder. It feeds continuously, thereby imitating a natural honey flow, and will produce more brood with less cost than any other feeder made, and can be filled any time of the day without causing robbing or excitement.

Send for feeder circular and bee-supply catalog. I carry a full line of Lewis Beeware and Dadant's Foundation. One of my Vacuum Bee Feeders complete with two bottles FREE with every ten-dollar order. Send me a list of your wants—it is no trouble to answer letters.



Thale's Vacuum Bee Feeder in Use

Thale's Vacuum Bee Feeder in Detail

TERMS, CASH WITH ORDER

Sample Feeder, with 2 bottles complete, mail postpaid,	55c
Ten Feeders, complete with 1 bottle, freight or exp.,	35c
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Extra bottles with cork valve, each	10c

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There is money in Bees if you know how. Make a good living from Bees or keep down the high cost of living. Always a good demand for men who know Bee Culture. Just the opportunity you have been wanting—learn at home. You can make your spare time count and finish this course this winter by beginning now. This excellent course prepared by E. R. Root, the foremost exponent of Scientific Beekeeping. Also splendid correspondence courses in General Farming, Truck—North or South, Poultry, Fruit, Flowers, Greenhouse, Soils, Dairying, Farm Management, Farm Book-keeping, Farm Veterinary, Writing for the Farm Press, Mushrooms, Ginseng, etc. Original and largest school devoted exclusively to teaching farming by mail. Write to-day for Free Booklet "How to Make the Farm Pay More," also temporary low rate, easy terms, full particulars. (Which course interests you?) (No agents.) Free sample lesson from General Farming Course on request.

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about these wonderful championship hatches—how Belle City owners everywhere are the Champion Poultry Raisers in their locality—and how you can become the Champion Poultry Raiser in your neighborhood. Get this book. Satisfy yourself. You'll get the greatest Incubator Bargain ever offered on an exact duplicate of the prize-winning

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The Incubators used by all the World's Championship Winners—by the U. S. Government—by leading Agricultural Colleges—and by over 276,000 leading poultry raisers all over the world. In my book I give you full description, proof and all particulars—illustrate the machines in actual colors—give you my **Personal Money-Back Guarantee**, and tell you why I can afford to send you an 8 Times World's Champion Belle City Incubator for half or less than half what others cost you, and prepay the freight. No one else can give you so much **hatching value** for so little **money**. I take all the risk. Send your name and address today and you'll get the whole interesting story **free**. Write me personally for quick service.

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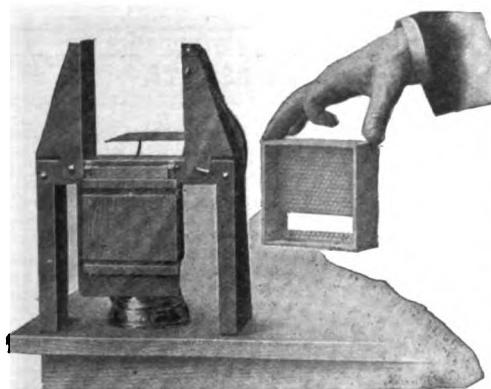


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WOODMAN'S SECTION - FIXER

A NEW MACHINE of pressed steel for folding sections and putting in top and bottom starters, all at one handling. A great time-saver, and a good job assured with ease. With top and bottom starter the comb is firmly attached to all four sides—a requirement to grade Fancy. Increase the value of your crop this season by this method. We want every one to try this machine. We guarantee satisfaction. Adjustable to any width— $4\frac{1}{4} \times 4\frac{1}{4}$ or 4x5 section. Model received with much favor by recent Detroit and Chicago beekeepers' conventions. Price \$2.50 f. o. b. Wt. 5 lbs. Send for special circular showing large illustrations.

A. G. WOODMAN CO., GRAND RAPIDS, MICH.

Classified Advertisements

Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say what your advertisement is in the Classified Columns or we will not be responsible for errors.

HONEY AND WAX FOR SALE

See our special sale of honey on advertising page 11 of this issue. THE A. I. Root Co., Medina, O.

Bronzed honey labels, 1000 for 80 cts.; others, 60 cts. per 1000. PEARL CARD Co., Clintonville, Ct.

Advertise your business with Business Cards. 500 printed, 75c. PEARL CARD Co., Clintonville, Ct.

FOR SALE.—Choice extracted honey in new 60-lb. cans at 9 cts. per lb. J. P. MOORE, Morgan, Ky.

FOR SALE.—Finest quality clover and buckwheat honey in 60-lb. cans. C. J. BALDRIDGE, Homestead Farm, Kendalia, N. Y.

FOR SALE.—No. 1 white comb, \$3.50 per case; No. 2, \$3.20; 24 lbs. to case. WILEY A. LATSHAW, Carlisle, Ind.

FOR SALE.—White clover at 10 cts. per lb., and fall honey at 8 cts. per lb., put up in 60-lb. cans. Sample, 10 cts. WM. WERNER, Rt. 2, Chadwick, Ill.

FOR SALE.—Several tons of raspberry-milkweed honey (mostly milkweed) in new 60-lb. cans (two in case), a very fine honey. Write for price. Small sample free. P. W. SOWINSKI, Bellaire, Mich.

FOR SALE.—200 cases comb honey, No. 1 and fancy white, in 4 x 5 sections, 24 to case; packed 9 cases to carrier. All white-clover honey; \$3.50 per case. EVANSVILLE BEE & HONEY CO., Evansville, Ind.

FOR SALE.—White-clover honey, none better. In 10-lb. pails, six in a case, at \$6.50 per case; 5-lb. pails, 12 in a case, at \$7.00 per case; $\frac{1}{2}$ -lb. glass jars, 24 in a case, at \$2.80 per case. Sample, 4 cts. Also in 60-lb. cans, very nice amber honey. HENRY STEWART, Prophetstown, Ill.

FOR SALE.—Blended raspberry, buckwheat, and goldenrod honey; has a thick body and a strong and very rich flavor. Put up for sale in new 60-lb. tin cans. Price \$5.00 a can. Sample by mail, 10 cts., which may be applied on an order for honey.

ELMER HUTCHINSON, Pioneer, Mich.

FOR SALE.—No. 1 white comb, \$3.25 per case; No. 2 white, \$2.75; No. 1 fall comb, \$2.75 per case; No. 2 fall, \$2.50 per case. All cases have 24 sections to case, and six cases to carrier. Amber extracted, 8 cts.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

HONEY AND WAX WANTED

WANTED.—Comb, extracted honey, and beeswax. R. A. BURNETT & Co., 173 So. Water St., Chicago.

WANTED.—Comb honey and beeswax. State what you have and price. J. E. HARRIS, Morristown, Tenn.

WANTED.—Honey, extracted and comb. Will buy or handle on commission. Beeswax—will pay highest price. HILDEBRETH & SEGELEN, New York, N. Y.

We pay highest market price for beeswax. Will also work your beeswax into "Weed Process" foundation for you at reasonable price. SUPERIOR HONEY Co., Ogden, Utah, and Idaho Falls, Idaho.

FOR SALE

FOR SALE.—A full line of Root's goods at Root's prices. A. L. HEALY, Mayaguez, Porto Rico.

FOR SALE.—Full line of Root's goods at factory prices. E. M. DUNKEL, Osceola Mills, Pa.

We now manufacture the famous "Weed Process" comb foundation. Special prices quoted on request. SUPERIOR HONEY Co., Ogden, Utah.

FOR SALE.—500 lbs. yellow biennial sweet-clover seed at \$14.00 per bushel of 60 lbs., hulled seed. R. L. SNODGRASS, Harrisburg, Col.

Beekeepers, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap. WHITE MFG. CO., Greenville, Tex.

New crop of extra-fine quality alfalfa seed, \$7.00 per bushel; sacks, 25 cts. extra; also some sweet-clover seed. R. L. SNODGRASS, Augusta, Kan.

FOR SALE.—Empty second-hand cans, two cans to the case; good as new; 25 cts. per case. C. H. W. WEBER & Co., Cincinnati, Ohio.

FOR SALE.—Better hive for less money. Beekeepers' supplies and standard-bred Italian bees. Write for catalog. A. E. BURDICK, Sunnyside, Wash.

The best of bee goods for the least money. Send for new catalog. Satisfaction guaranteed or money refunded. H. S. DUBY & SON, St. Anne, Ill.

FOR SALE.—Root's goods and Dadant's foundation at factory prices. SPENCER APIARIES Co., Nordhoff, Cal.

Beekeepers! If you are interested in double-walled hives, write for our free catalog. THE L. F. HOWDEN MFG. CO., Fillmore, N. Y.

FOR SALE.—30 eight-frame bodies with half-story supers, section-holders, and wired Hoffman frames above, \$18.00; 50 new ten-frame bodies in flat plain frames, 75 cts. each. R. C. WILCOX, Spencer, N. Y.

1914 cars Root's Bees Supplies and American honey-cans now arriving. For quick shipments order from SUPERIOR HONEY Co., Ogden, Utah, and Idaho Falls, Idaho.

The Beekeepers' Review Clubbing List: *The Review* and *Gleanings* one year, \$1.50. *The Review* and *American Bee Journal* one year, \$1.50. All three for one year only \$2.00. Dealers or those wanting to buy honey kindly ask for a late number of the *Review* having a list of 100 producers having honey for sale. Address THE BEEKEEPERS' REVIEW, Northstar, Mich.

REAL ESTATE

Virginia is the land of performance; farmers live well and make money; short winter; long growing season and abundant rainfall enable two and three crops a year. Write F. H. LABAUME, Agr'l Agt. Norfolk & Western Ry., Room 246, N. & W. Bldg. Roanoke, Va. Booklets, maps, etc., on request.

Nature's Treasure Garden is calling you. Come South, and grow with the country. Land \$15 an acre up; cheapest in America; two and three crops grown yearly; ample markets. Living costs low. Climate very healthful and agreeable. Farm lists, "Southern Field" magazine, and State booklets free. M. V. RICHARDS, Land and Industrial Agent, Southern Railway, Room 27, Washington, D. C.

WANTS AND EXCHANGES

I pay cash for used beehives. Any quantity.
JAMES RENWICK, Leroy, Ind.

WANTED.—Southern queens. 200 for May delivery.
F. B. CAVANAGH, Hebron, Ind.

WANTED.—250 colonies of bees, from a location free from disease. Box 3770, GLEANINGS, Medina, O.

WANTED.—Bees in lots of 25 to 300 colonies, preferably within 250 miles of Detroit, Mich.
A. W. SMITH, Birmingham, Mich.

WANTED.—Carload of bees for May delivery within 300 miles of Niagara Falls or Buffalo. Also wax.
S. B. BISBEE, Beansville, Canada.

WANTED.—100 or more cases of five-gallon second-hand cans within shipping distance of New York.
BENJ. LISS, Lewiston, Oriente, Cuba.

WANTED.—To exchange "Root" bee supplies and "American" honey-cans for honey in five-gallon cans or for beeswax. SUPERIOR HONEY CO., Ogden, Utah, and Idaho Falls, Ida.

WANTED.—100 or more colonies bees in Southern Idaho, from location free from any disease. Please describe fully, with price wanted, and date delivery can be made.
BOX 18, GLEANINGS, Medina, O.

Will exchange 500 back numbers of magazines, including 125 *Ladies' Home Journals*, for honey, Prof. Bailey's works on agriculture, or offers.

FRANK LACEY, 5 Madison Ave., Danbury, Ct.

WANTED.—To furnish every beekeeper within 500 miles of Boise, Idaho, with the best and cheapest bee supplies on the market, *quality considered*. Send me your order or a list of your requirements for 1914. Our catalog and price list will be mailed to you free. Order early and get the discounts.

C. E. SHERIVER, Boise, Idaho.

WANTED.—A partner for one-third undivided interest in a 240-acre tract of heavy hammock land on the Indian River, Fla., a few miles below Daytona, Volusia Co. Ideal citrus land; flowing wells can be had anywhere on property; a mile and a quarter river front, with beautiful building sites on Key. Write if interested. EDWIN G. BALDWIN, DeLand, Fla.

BEES AND QUEENS

FOR SALE.—50 to 200 colonies, eight-frame, first-class.
E. F. ATWATER, Meridian, Idaho.

Pure Italian bees or their hybrids, in L. 10 frames, wired, full foundation, 1 or 100.
JOS. WALRATH, Antioch, Cal.

FOR SALE.—150 colonies or carload of Italian bees in ten-frame Langstroth hives, in Missouri. Address R. F. HOLTEEMANN, Brantford, Ont., Can.

California Golden queens produce the bright workers, equal to any. Tested, \$1.25 to \$2.50; mated, \$1.75; 12, \$8.00; 50, \$32; 100, \$60.
W. A. BARSTOW & CO., San Jose, Cal.

1914 queens. Moore's strain of leather-colored Italians in April at 75 cts. Write us for prices on nuclei. Address
OGDEN BEE AND HONEY CO., Ogden, Utah.

FOR SALE.—Golden Italian queens that produce golden bees; for gentleness and honey-gathering they are equal to any. Every queen guaranteed. Price \$1.00; 6 for \$5.00.
WM. S. BARNETT, Barnett's, Va.

Golden Italian queens that produce golden bees, the brightest kind, gentle, and as good honey-gatherers as can be found. Each: \$1.00; six, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.
J. B. BROCKWELL, Malvern Hill, Va.

Golden-yellow Italian queens my specialty. Untested, \$1.00; tested, \$1.50. Ready April 1. Safe arrival guaranteed. E. A. SIMMONS, Greenville, Ala.

Phelps' Goldens combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; tested, \$2.00 and \$3.00; breeders, \$5.00 and \$10.00.
C. W. PHELPS & SON,
8 Wilcox St., Binghamton, N. Y.

Pamphlet, "How I Raise My Queens;" extra good for beginners; also price list and testimonials of my queens postpaid for 5 cts. in stamps to any address.

CUB WALKER, Queen-breeder,
Jellico, Et., 1, Box 18, Tenn.

QUEENS.—I am wintering 850 choice tested three-banded Italian queens raised last September. Ready for delivery March 20 to April 10. Price \$1.50 each. Select, \$2.00. Untested, 1 queen, \$1.00; 10 queens, \$7.50. Order early. No poor-looking queens sent out. Send for circular. H. PEKINS, Artesia, Cal.

FOR SALE.—Several yards of bees on five years' time and easy terms of payment. No disease, and best of locations. All we ask is that you help us work these bees for several months this year to show your ability to manage them. Further particulars on request.
SPENCER APIARIES CO., Nordhoff, Cal.

Dunn's Golden Italian queens, bred strictly for business, that produce a strong race of honey-gatherers. March 1 to Oct. 15: One, mated, 75 cts.; 6, \$4.25; 12, \$8.25; 50, \$32.50; 100, \$60.00. Tested, \$3.00; breeders, \$10.00. L. J. DUNN, Queen-breeder, Box 337 G, Rt. 6, San Jose, Cal.

Queens bred from Moore's and Doolittle's best Italian stock; untested, 60 cts. each; \$6.60 per doz.; \$50 per 100. Tested, 90 cts. each; \$10.20 per doz.; \$80.00 per 100. Delivery guaranteed. Book orders now. Nuclei, any quantity, two-frame, \$1.50; three-frame, \$2.00. Add price of above queens wanted.
SPENCER APIARIES, Nordhoff, Cal.

FOR SALE.—Three-banded Italian queens, nuclei, and bees by the pound. March 15 to June 15, untested queens, each, 75 cts.; 6, \$4.25; 12, \$8.25; tested, each, \$1.25; 6, \$7.25; 12, \$14.00. Bees by pound: 1-lb. package, \$1.25; 6, \$7.25; 12, \$14.00. If you wish a queen with bees by the pound add price of queen. Write for circular and complete price list.
BROWN & BERRY, Hayneville, Ala.

FOR SALE.—California Italian queens, Goldens and Three-banders by return mail after March 15; select untested, 75 cts.; 12, \$8.00; tested, \$1.00; breeders, \$3.00. Bees by the pound a specialty, ready April 1; 1 lb., \$1.85; 2 lbs., \$2.50; large lots, less. Bookings orders now. Deliveries and satisfaction guaranteed. Correspondence solicited. Circular free.
J. E. WING, 155 Schield Ave., San Jose, Cal.

Good QUEENS.—Good queens are a real necessity in any apiary if best results are to be expected. The old leather-colored three-band Italians have proven themselves to be the best general-purpose bees extant. These I can supply in any quantity you may wish. Untested, \$1.00 each; \$4.25 for six; \$8.00 per dozen. Safe arrival and satisfaction. All orders will have prompt attention.
E. J. ATCHLEY, Bloomington, Cal.

FOR SALE.—Early swarms at fall prices; $\frac{1}{4}$ -lb. bees, \$1.00; 1 lb. bees, \$1.50. Add price of queen if wanted. Untested three-band Italian queens, 75 cts. each; tested Italian queens, \$1.25 each. These are bred from best honey-gathering strain. No disease. Safe arrival and satisfaction guaranteed. This is undoubtedly the best way for Northern honey-producers to increase and improve their stock. Delivery begins about April 5. Capacity, 40 swarms per day.
W. D. ACHORD, Fitzpatrick, Ala.

FOR SALE.—Italian queens and bees by the pound. Ready for delivery by April 1, 1914. Having over 600 colonies of bees and 500 nuclei from which to draw, we expect to fill all orders very promptly. For a number of years we have been constantly improving our stock with commercial queen-rearing in view. Now we are in a position to guarantee satisfaction to our customers. Give us a trial order. Write for prices, etc.
BROWN & BERRY, Hayneville, Ala.

FOR SALE.—Italian queens, bees by pound. Descriptive list free. Apiaries under State inspection. Leaflets, "How to Introduce Queens," 15 cts.; "How to Increase," 15 cts.; both 25 cts.

E. E. MOTT, Glenwood, Mich.

EARLY QUEENS.—Those who desire early queens can be supplied by sending orders to us. Only three-band Italians stand the severe test against diseases, and our bees are clean. Untested queens, \$1.00 each; \$4.25 for six; \$8.00 per dozen. Always safe arrival and satisfaction to everybody. If you desire queens in large lots early, better let us book you as soon as convenient, and money can be sent when queens are wanted. Your check is good, or any way you wish to remit.

THE RIALTO HONEY CO., Box 78, Rialto, Cal.

Many men of many minds; but the minds of practical beekeepers are turned toward the old reliable three-band Italians. We have them in their purity, new blood, new importation. Untested queens from March to June, \$1.00 each; \$4.25 for six, or \$8.00 per dozen, safe arrival and satisfaction to all customers. Write for prices on large quantities. You do not have to return dead queens to us—just state it so on a postal card, and queens dead on arrival will be replaced promptly.

THE GOLDEN RULE BEE CO., Riverside, Cal.

POULTRY

Rhode Island Reds. Strong baby chicks for sale. Write me. E. O. WALTEZ, Medina, Ohio.

FOR SALE.—Bourbon Red Turkeys, thoroughbreds. Prices right. MISS ATTIE DENNY, Owenton, Ky.

Eggs for hatching, S. C. White Orpingtons. Matting list free. JAMES R. LAMPSON, box B, Medina, O. class stock, \$10; \$12 per trio.

Silver Campines are money-makers. I offer first. ELMER W. PALMER, Catskill, N. Y.

LEGOHORNS.—Eggs for hatching. S. C. W. Leghorn, \$5.00 per 100; \$1.00 per 15. Send for catalog. WOODWORTH FARM, Wilton, Ct.

Indian Runner breeding-ducks laying now. Utility and exhibition stock (pure white eggs) sent on approval. DEBOY TAYLOR, Box G, Lyons, N. Y.

Eggs.—20 for \$1.00; leading varieties prize poultry, pigeons, hares, etc. Booklet free. Large illustrated catalog, 10 cts. F. G. WILE, Telford, Pa.

Rhode Island Reds, Partridge Wyandottes, Mottled Anconas, White Leghorns, White Cornish; Pekin, Rouen, Fawn, and White Indian Runner ducks; also pure-white Indian Runners and White Call ducks. Line-bred stock for sale. Eggs to set. Prices reasonable for high-class stock.

L. G. CABY, Trimble, Ohio.

PIGEONS

Pigeons! Pigeons! Thousands, all breeds; lowest prices; satisfied customers everywhere. Start with our \$88-making Jumbo Squab-breeders. Large, free, instructive, illustrated matter.

PROVIDENCE SQUAB CO., Providence, R. I.

MISCELLANEOUS

Choice maple syrup direct from producer. C. C. PARKHURST, Rt. 1, Phalanx Station, Ohio.

Belgian hares, breeders, and youngsters. List free. HARVEY L. STUMB, Quakertown, Pa.

FOR SALE.—Whippoorwill peas, \$2.50 per bushel. W. T. LYONS, Decherd, Tenn.

HELP WANTED

WANTED.—Help in apiaries, 1914. Salary or shares. F. B. CAVANAGH, Hebron, Ind.

WANTED.—Reliable man to work with bees in outyards. State age, experience, and wages. A. L. COGGSHALL, Groton, N. Y.

WANTED.—Reliable man of good habits to work with bees and on small farm for season of 1914. Give age, experience, and wages. FRANK KITLINGER, Caledonia, Wis.

WANTED.—A good young man for the season of 1914 to work with bees. State salary, experience, age, etc., in first letter. FRANK C. ALEXANDER, Delanson, N. Y.

WANTED.—Young single man, familiar with bee business, to help with supplies, honey, and queen-production. We furnish board and lodging. State wages wanted. THE PENN CO., Penn, Miss.

WANTED.—Another young man of good habits, who is interested, to work with bees and on farm for coming season. Have nearly 1000 colonies. N. L. STEVENS, Venice Center, N. Y.

WANTED.—Man (married preferred) experienced in queen-raising; employment by the year on a salary and percentage. OGDEN BEE AND HONEY CO., Ogdem, Utah.

WANTED.—A young man to learn the bee business by helping me during the summer months. State particulars in first letter. Tobacco or liquor users not wanted. HARRY W. BEAVER, Troy, Pa.

WANTED.—A permanent position for a farm-raised, reliable man, handy with tools, who has had some experience with bees, for my Wisconsin apiaries. Another man wanted for northern Louisiana. H. C. AHLES, Rt. 1, West Bend, Wis.

I could take two or three young men of good clean habits to learn beekeeping during the season of 1914; crop last year, 80,000 lbs. Board free, and something more if we both do well.

R. F. HOLTERMANN, Brantford, Ont., Canada.

WANTED.—Three good bee-men for season of 1914, for work in Idaho and California. Must be strictly temperate, industrious, and willing to work hard in the busy season. State experience, age, and salary required, in first letter. N. M., care of GLEANINGS, Medina, Ohio.

BEEKEEPERS' DIRECTORY

If you need queens by return mail send to J. W. K. SHAW & CO., Loreauville, Iberia Parish, La.

Nutmeg Italian queens, leather color, after June 1, \$1.00. A. W. YATES, Hartford, Ct.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortland St., New York.

QUEENS.—Improved red-clover Italians, bred for business. June 1 to Nov. 15, untested queens, 75c. each; dozen, \$8.00; select, \$1.00 each; dozen, \$10; tested queens, \$1.25 each; dozen, \$12.00. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Boyd, Ky.

Quirin's famous improved Italian queens, nuclei, colonies, and bees by the pound, ready in May. Our stock is northern-bred and hardy; five yards wintered on common stands in 1908 and 1909 without a single loss. For prices, send for circular.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

SPECIAL NOTICES BY OUR BUSINESS MANAGER.

BEESWAX IN DEMAND.

The market price of beeswax continues to grow stronger, as the several interests using it keep bidding against each other for the moderate supplies being offered. The price has reached a point much higher than we have ever known it to go before. We are obliged to withdraw all printed prices—retail, wholesale, and jobbing—on comb foundation from this date. We will quote such prices as we are able to make from time to time for immediate acceptance only.

SWEET-CLOVER SEED.

Since our last issue we have sold out our stock of unhulled white-sweet-clover seed, and greatly reduced our stock of other kinds. The demand is something remarkable for so early in the season, and prices are as high already as they were any time last spring. We have engaged a thousand pounds of unhulled white in Oregon, which we shall hardly have in stock for several weeks. In the mean time we will furnish seed, while our stock lasts, at as low a price as we are able to make. Our prices to-day which are not guaranteed, are as follows:

Prices in lots of 1 lb.	10 lb.	25 lb.	100 lb.
<i>Melilotus alba, biennial:</i>			
White sweet clover, unhulled	.28	\$2.10	\$5.00
White sweet clover, hulled			
.30	2.80	6.75	26.00
<i>Melilotus officinalis, biennal:</i>			
Yellow sweet clover, unhulled	.21	1.90	4.50
Yellow sweet clover, hulled	.28	2.60	6.25
Yellow sweet clover, annual	.14	1.20	2.75
			10.00

SPECIAL LOTS OF SWEET-CLOVER SEED.

We have available a few hundred pounds of unhulled sweet-clover seed, biennial, mixed white and yellow. As a soil renovator and producer of hay as well as honey this is fully as good as any. Unless you desire to save seed of a single variety this will be as good as any. Price, while it lasts, \$1.50 for 10 lbs.; \$3.50 for 25 lbs.; \$18.00 per 100 lbs.

We have also a few hundred pounds of hulled seed which is alfalfa and white sweet mixed. Sweet clover is often used to get alfalfa started by inoculating the soil. The sweet clover is biennial, and lasts only two years if you do not allow it to reseed, while alfalfa is a perennial, and continues to grow year after year from the same root after once being started. Price of this lot while it lasts, 20 cents per lb.; \$1.80 for 10 lbs.; \$4.25 for 25 lbs.; \$16.00 per 100 lbs.

We have at Medina, at Chicago, and at Des Moines, Iowa, a supply of unhulled yellow which we can furnish, while it lasts, at prices given in table above.

SPECIAL NOTICES

A. I. Root

In A. I. Root's department for Feb. 15 will appear a full account of the St. Petersburg-Tampa "Air-Boat Line," the first flying-machine which makes trips on schedule time, carrying passengers.



Large Eggs

now and all winter, too, if you feed your hens The Humphrey Way—fresh bone prepared in a

HUMPHREY BONE CUTTER
with its Always-Open Hopper. If you have 10 hens or more, write for our offer and a copy of our profitable book, "The Golden Egg."

HUMPHREY, MINE ST. FACTORY, JOLIET, ILL.

This Washer Must Pay for Itself

A MAN tried to sell me a horse once. He said it was a fine horse, and had nothing the matter with it. I wanted a fine horse. But I didn't know any thing about horses much. And I didn't know the man very well either.

So I told him I wanted to try the horse for a month. He said "All right, but pay me first, and I'll give you back your money if the horse isn't all right."

Well, I didn't like that. I was afraid the horse wasn't "all right," and that I might have to whistle for my money if I once parted with it. So I didn't buy the horse although I wanted it badly. Now this set me thinking.

You see I make Washing Machines—the "1900 Gravity" Washer.

And I said to myself, lots of people may think about my Washing Machine as I thought about the horse, and about the man who owned it.

But I'd never know, because they wouldn't write and tell me. You see I sell my Washing Machines by mail. I have sold over half a million that way.

So, thought I, it is only fair enough to let people try my Washing Machines for a month, before they pay for them, just as I wanted to try the horse.

Now, I know what our "1900 Gravity" Washer will do. I know it will wash the clothes, without wearing or tearing them, in less than half the time they can be washed by hand or by any other machine.

I know it will wash a tubful of very dirty clothes in Six Minutes. I know no other machine ever invented can do that, without wearing out the clothes.

Our "1900 Gravity" Washer does the work so easily that a child can run it almost as well as a strong woman, and it doesn't wear the clothes, fray the edges, nor break buttons the way all other machines do.

It just drives soapy water clear through the fibers of the clothes like a force pump might.

So, said I to myself, I will do with my "1900 Gravity" Washer what I wanted the man to do with the horse. Only I won't wait for people to ask me. I'll offer first, and I'll make good the offer every time.

Let me send you a "1900 Gravity" Washer on a month's free trial. I'll pay the freight out of my own pocket, and if you don't want the machine after you've used it a month, I'll take it back and pay the freight too. Surely that is fair enough, isn't it?

Doesn't it prove that the "1900 Gravity" Washer must be all that I say it is?

And you can pay me out of what it saves for you. It will save its whole cost in a few months, in wear and tear on the clothes alone. And then it will save 50 cents to 75 cents a week over that in washwoman's wages. If you keep the machine after the month's trial, I'll let you pay for it out of what it saves you. If it saves you 60 cents a week, send me 50 cents a week till paid for. I'll take that cheerfully, and I'll wait for my money until the machine itself earns the balance.

Drop me a line to-day, and let me send you a book about the "1900 Gravity" Washer that washes clothes in six minutes.

Address me this way—H. L. Barker, 1127 Court Street, Binghamton, N. Y. If you live in Canada, address 1900 Washer Co., 355 Yonge St., Toronto, Ontario.



EARLY-ORDER CASH DISCOUNTS

Apply Here just as they
do at the Factory

As Southwestern distributors of ROOT'S BEEKEEPERS' SUPPLIES, we are very glad to make this first announcement of a special discount for early orders, accompanied by cash, to our beekeeping friends throughout this territory.

We give exactly the same discount that is granted by the manufacturers of these famous goods, and the prices in our special catalog are the same as their own. There is an extra saving for you in ordering from us—FREIGHT. Better give this your special attention before ordering from elsewhere.

THE CASH DISCOUNT ON EARLY ORDERS PLACED IN FEBRUARY IS 2 PER CENT.

This applies to every thing in the way of beekeepers' supplies except a few special articles. On large general orders we will allow the discount on some of the excepted articles, not exceeding ten to twenty per cent of the entire order.

REMEMBER WE MANUFACTURE THE FAMOUS WEED PROCESS COMB FOUNDATION.

We have a large demand for this product, and are turning out comb foundation of the finest quality. Include what you will need for the opening of next season in your early order. Shipment may be held subject to your convenience if desired; but get your order in now and save 2 per cent.

**Toepperwein & Mayfield Co.
San Antonio, Texas**

No. 501 Set of Quality Knives

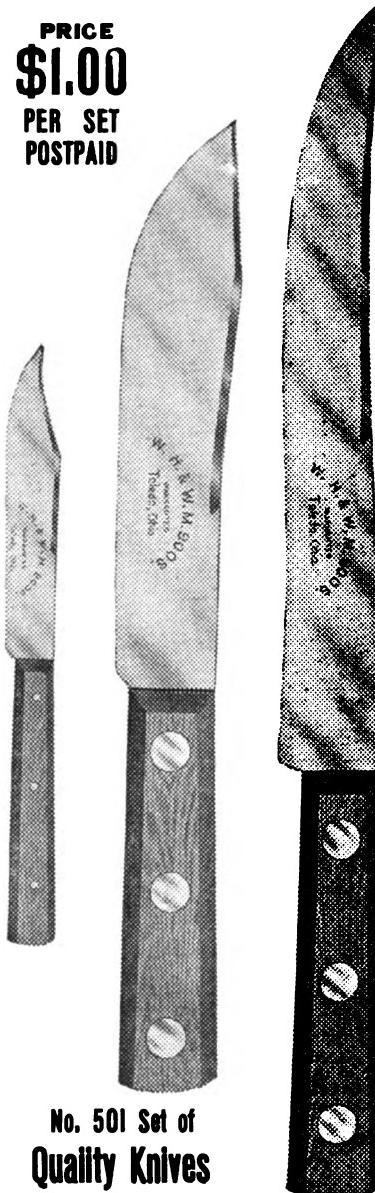
OUR set of "QUALITY" KNIVES is made up of one 8-inch SLICER, one 6-inch BUTCHER, and one 3½-inch PARLING-KNIFE. A combination of three of the MOST USEFUL SIZES and DESIGNS that one can have in his home. In presenting this set of knives we want to impress upon the trade the fact that these knives are all their name implies, QUALITY IN THE STRICTEST SENSE OF THE WORD. There is nothing better in the way of cutlery to be had for IT IS IMPOSSIBLE TO MAKE ANY THING BETTER. The Set is MADE UPON HONOR THROUGHOUT to the MINUTEST DETAIL. BLADES are of the VERY BEST TEMPERED CRUCIBLE STEEL, SWEDGED, ETCHED, and FINISHED with the Highest Polish it is possible to put on metal. Handles are GENUINE COCOBOLO, Beveled Edges, Through Tang with Three Large Brass Saw Rivets. We ABSOLUTELY GUARANTEE the QUALITY of this set of knives to be Strictly First Class in Every Way and the BEST VALUE EVER OFFERED. LIST PRICE the set \$1.00 postpaid.

Premium Offer

We will send this complete set of knives postpaid to any reader who sends us one new yearly subscriber to Gleanings in Bee Culture at \$1.00 per year, or the same for four new six-months-trial subscribers at 25c. each

Canadian postage on subscription for one year, 30c extra. On each trial subscription, 15c extra.

PRICE
\$1.00
PER SET
POSTPAID



No. 501 Set of
Quality Knives

A WORD OF PRAISE FOR THE PREMIUM KNIVES.
Calvert, Ala., Oct. 22, 1915.

The A. I. Root Co., Medina, Ohio.
I received the set of premium knives and am well pleased
with them. Yours very truly, R. RHODEMBERGER.

The A. I. Root Co., - Medina, Ohio.

Save \$300⁰⁰ to \$1,000⁰⁰ On Your New House!

Write for Grand FREE BUILDING MATERIAL Catalog

Bargains Shipped Anywhere

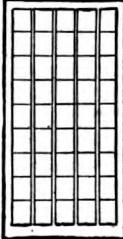
There is not a moment's time to lose if you want to put up a new house or repair an old one at lowest possible cost. Our Great New Catalog **beats any lumber yard in America** for bargain prices on High-Grade, Guaranteed Building Material. We are

Plan
No. 141



All Lumber, Hardware,
Millwork and Paints **\$529**

HOT-BED SASH



No. E-440

\$1.75

Glazed complete. Made of best cypress. Our Hot-Bed Sash is the best in America. All sizes at Bargain Prices.

Bargain Headquarters. To make sure of saving several hundred dollars on your new house, sign that coupon at the bottom of the ad **and rush it to us at Davenport!** Our Warehouses, Mills and Yards are filled with immense stocks of Sash and Doors, Lumber, Interior Finish, Wallboard, Roofing, Flooring, Paint, Builders' Hardware, Stair Work, Porch Work, Mouldings, etc., etc. Until further notice, everything in the Catalog goes at the low prices now in force. Write for the Building Material Catalog. Here are a few of the 5,000 Special Bargain Offers on Building Material in the free catalog. Goods may be ordered direct from this ad, under our Guarantee of Satisfaction or Money Back.

DOORS ^{as Low 77c} JAP-A-TOP ROOFING

All Styles and Sizes
Quality Guaranteed

Hundreds of special designs, glazed and unglazed. Oak, White and Yellow Pine, Cypress, Fir, Oak Veneer, Solid Yellow Pine and Front Doors. Complete stock in our
Grand Free Millwork Catalog



Beautiful, durable, Surfaced with genuine slate. Two colors, Red and Grayish Green.

\$2.25 Per Roll of
108 Sq. Feet



Jap-a-Top SHINGLES
Price per Square of 424 Shingles **\$4.75**



PAINT "Quality" House Paint, per gallon can, \$1.22. In barrels, per gallon, \$1.10. All shades and colors. Quality Barn Paint, per gallon, 75c.

LUMBER in Car Lots—Save \$100 to \$300

Our Lumber List offers millions of feet of clear, dry, clean, seasoned lumber at wholesale prices. Dimension, heavy Joists and Timbers, Siding, Ceiling, Finishing Lumber, Shingles, Laths, Boards, Posts and Battens, etc. **ESTIMATES FURNISHED FREE.** Send us your list.

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Gentlemen:—Please send the books checked below.

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- Millwork Plan Book
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In sending for Plan Book, enclose 10 cents for postage and mailing. You will receive the books by return mail.

BESTIARY BEE GULF



VOL. XLII. FEB. 15, 1914. NO. 4.

POLLYANNA THE GLAD BOOK

By ELEANOR H. PORTER, author of "Miss Billy" and "Miss Billy's Decision;" illustrated, cloth-bound, \$1.40 postpaid.

"Enter Pollyanna. She is the most irresistible maid you have met in all your journeyings through Bookland. She is so real that you forget that she is a story girl. After the first introduction you will feel that the inner circle of your friends has admitted a new member. A brave, winsome, modern American girl, Pollyanna walks into print to take her place in the hearts of all members of the family."

Twelfth Printing

Read some of the press comments:

"Pollyanna is the 'gladdest' book that was ever written. It is of more real value than any thousand sermons to which I have ever listened."—*Passaic Daily News*.

"It is a book that charms at once by its style, and delights by its character-drawing and the interest developed by the story."—*The Boston Journal*.

"Pollyanna is a delightful character, and the book refreshingly natural."—*Cedar Rapids Record*.

Premium Offer

Send us two new yearly subscriptions to GLEANINGS IN BEE CULTURE with remittance of \$2.00, and we will send you postpaid as premium a copy of "Pollyanna."

A copy of "Pollyanna" for TWO NEW subscriptions to Gleanings in Bee Culture at \$1.00 each. (See Mr. A. I. Root's write-up of this book on page 155 of this copy of GLEANINGS.)

The A. I. Root Co., Medina, Ohio

"Falcon" Bee Supplies.

. . . . Every Thing for the Beekeeper

Take advantage of the early-order discount, send us your list of requirements, and we will quote you our very best factory prices and discounts.

Having recently constructed an eight-car-capacity kiln, and having enlarged our power plant, we shall be able to handle your orders to the best advantage.

"Falcon" Supplies speak for themselves. Don't delay your order, but take advantage of this opportunity and let us ship the goods at your convenience.

Send for our foundation samples and Red Catalog, postpaid.

W. T. Falconer Manufacturing Company, Falconer, New York

Where the good beehives come from

HONEY Bought Sold...

Central Ohio Honey Market

Finest quality WHITE-CLOVER honey a specialty. Producers who have not yet sold their crop should write. Those who have disposed of their crop and are in need of more for their trade, I shall be glad to supply at lowest prices consistent with highest quality and a fair margin of profit.

The correspondence of wholesale and retail dealers is especially solicited, as I am in position to furnish a grade of comb and extract honey that will suit the most exacting trade. If interested, write for quotations and full description of the line.

Bee Supplies

Now is the best time to place your order for supplies for use next season. The prospect was never brighter, and there is every thing to gain and nothing to lose by ordering before the spring rush is on. Ask for revised price list and early-order discounts.

Root Quality and Peirce Service
from Ohio's Supply Center

E. W. Peirce, Zanesville, O.
Airdome Bldg., South Sixth St.

It turns over an important "new leaf" beginning with the January number.

The Guide to Nature Several New Features

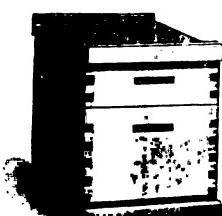
"Birds in the Bush," a department edited by Edmund J. Sawyer, with illustrations from original drawings by this talented artist-ornithologist.

"The Fun of Seeing Things," a department for young folks, edited by Edward F. Bigelow, succeeding his well-known work as editor of the "Nature and Science" department of "St. Nicholas" for more than fourteen years.

This new department will be really new. It will not be "schooly," not "nature study," not to induce parents and educators to say, "It is good for the children," but it will appeal directly to the young folks themselves and will help them to enjoy the natural objects that surround them. It will be true to its name.

Subscription \$1.00 a year; single copy 10c.
To new subscribers, four months trial for
25c. Address (and make check or money
order payable to)

**The Agassiz Association,
ARCADIA:
Sound Beach, Connecticut**



EARLY-ORDER DISCOUNTS WILL

Pay You to Buy Bee Supplies New

29 years' experience in making everything for the beekeeper. A large factory specially equipped for the purpose ensures goods of highest quality. . . . Write for our illustrated catalog and discounts today.

LEAHY MFG. CO., . 95 Sixth St., . Higginsville, Missouri

HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market price at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

NATIONAL BEEKEEPERS' ASSOCIATION GRADING-RULES *Adopted at Cincinnati, Feb. 13, 1913.*

Sections of comb honey are to be graded: First, as to finish; second, as to color of honey; and third, as to weight. The sections of honey in any given case are to be so nearly alike in these three respects that any section shall be representative of the contents of the case.

I. FINISH:

1. *Extra Fancy*.—Sections to be evenly filled, comb firmly attached to the four sides, the sections to be free from propolis or other pronounced stain, combs and cappings white, and not more than six unsealed cells on either side.

2. *Fancy*.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white, and not more than six unsealed cells on either side exclusive of the outside row.

3. *No. 1*.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white to slightly off color, and not more than 40 unsealed cells, exclusive of the outside row.

4. *No. 2*.—Comb not projecting beyond the box, attached to the sides not less than two-thirds of the way around, and not more than 80 unsealed cells exclusive of the row adjacent to the box.

II. COLOR:

On the basis of color of the honey, comb honey is to be classified as: first, white; second, light amber; third, amber; and fourth, dark.

III. WEIGHT:

1. *Heavy*.—No section designated as heavy to weigh less than fourteen ounces.

2. *Medium*.—No section designated as medium to weigh less than twelve ounces.

3. *Light*.—No section designated as light to weigh less than ten ounces.

In describing honey, three words or symbols are to be used, the first being descriptive of the finish, the second of color, and the third of weight. As for example: Fancy, white, heavy (F.W.H); No. 1, amber, medium (1-A-M), etc. In this way any of the possible combinations of finish, color, and weight can be briefly described.

CULL HONEY:

Cull honey shall consist of the following: Honey packed in soiled second-hand cases or that in badly stained or propolized sections; sections containing pollen, honey-dew honey, honey showing signs of granulation, poorly ripened, sour or "weeping" honey; sections with comb projecting beyond the box or well attached to the box less than two-thirds the distance around its inner surface; sections with more than 60 unsealed cells, exclusive of the row adjacent to the box; leaking, injured, or patched-up sections; sections weighing less than ten ounces.

NEW HONEY-GRADING RULES ADOPTED BY THE COLORADO STATE BEEKEEPERS' ASSOCIATION, DECEMBER 13, 1911.

FANCY WHITE.—Sections to be well filled, comb firmly attached to all sides and evenly capped except the outside row next to the wood. Honey, combs, and cappings white, and not projecting beyond the wood; wood to be well cleaned; no sections in this grade to weigh less than $13\frac{1}{2}$ ounces.

No. 1.—Sections to be well filled, combs firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey white or very slightly off color. Combs not projecting beyond the wood; wood to be well cleaned; no section in this grade to weigh less than $13\frac{1}{2}$ ounces.

CHOICE.—Sections to be well filled; combs firmly attached; not projecting beyond the wood, and entirely capped, except the outside row next to the wood. Honey, comb, and cappings from white to amber, but not dark; wood to be well cleaned; no section in this grade to weigh less than 12 ounces.

No. 2.—This grade is composed of sections that are entirely capped, except row next to wood, weighing from ten to twelve ounces or more, also of such sections that weigh 12 ounces or more, and have not more than 50 uncapped cells all together, which must be filled. Combs and cappings from white to amber in color, but not dark; wood to be well cleaned.

EXTRACTED HONEY.—Must be thoroughly ripened, weigh 12 pounds per gallon. It must be well strained, and packed in new cans. It is classed as white, light amber, and amber.

STRAINED HONEY.—This is honey obtained from combs by all other means except the centrifugal extractors, and is classed as white, light amber, amber, and dark; it must be thoroughly ripened and well strained. It may be put up in cans that previously have contained honey.

BOSTON.—We quote fancy and No. 1 white comb honey at 15 to 16; fancy white extracted honey in 60-lb. cans, 11. Beeswax, 30.

Boston, Feb. 5.

BLAKE-LEE CO. .

BUFFALO.—Our local market is well supplied with honey. The market is very quiet, and not any encouragement in sight. Quotations below are for single-case sales. These prices would be shaded in job lots. Fancy white comb honey, 16 to 17; No. 1 ditto, 15 to 16; No. 2 ditto, 12 to 14; No. 1 buckwheat comb, 12 to 14; No. 2 ditto, 11 to 12; white extracted honey, 8 to 10; dark ditto, 7 to 8; beeswax, 28 to 30.

Buffalo, Feb. 7.

W. C. TOWNSEND.

**JUST
OUT!**

New 1914 Catalog--"Everything for Bees"

Lay your plans for the new season now. Send for the 1914 Muth Catalog of Beekeepers' Supplies. It's just off the press. In it you will find full information about the remarkable MUTH SPECIAL Dovetailed Hives. Drop a postal card at once—sure!

THE FRED W. MUTH CO.

204 WALNUT STREET

"The Busy Bee Men"

CINCINNATI, OHIO

P. S.—Ship us your old combs and cappings and let us render them for you. Our process extracts the last drop of wax from the slumgum. This means money for you. Write for full particulars.

SPECIAL DELIVERY

During this month we shall double our usual efforts in points of delivery and service. We carry nothing but the Root make, which insures the best quality of every thing. We sell at factory prices, thereby insuring a uniform rate to every one. The saving on transportation charges from Cincinnati to points south of us will mean quite an item to beekeepers in this territory. We are so located that we can make immediate shipment of any order the day it is received.

New 64-page Catalog

Our new 1914 catalog contains double the pages of former editions and requires extra postage. It is filled from cover to cover with complete lists of goods in every line to meet every requirement of beekeepers. If you haven't received a copy when you read this, be sure to ask for one. It will save you money.

New Features for 1914

Few radical changes have been made this season. It should be noted, however, that we will send out with regular hives, unless otherwise ordered, the metal telescopic or R cover with super cover underneath. The side rail for the bottom-board will be extra length so as to overcome the difficulty experienced by some last season. Improvements have been made in extractors. We shall carry a very heavy stock so that orders may be filled with our usual promptness. Write us your needs. Early-order discount this month 2 per cent.

C. H. W. Weber & Co.

2146 Central Avenue

Cincinnati, Ohio

Gleanings in Bee Culture

E. R. ROOT
EditorA. I. ROOT
Editor Home Dept.H. H. ROOT
Ass't EditorJ. T. CALVERT
Business Mgr.

Department Editors:—Dr. C. C. Miller, J. E. Crane, Louis H. Scholl, G. M. Doolittle, Wesley Foster, J. L. Byer, P. C. Chadwick.

\$1.00 per year. When paid in advance: 2 years, \$1.50; 3 years, \$2.00; 5 years, \$3.00.

POSTAGE IS PREPAID by the publishers for all subscriptions in the United States, Hawaiian Islands, Philippine Islands, Guam, Porto Rico, Tutuila, Samoa, Shanghai, Canal Zone, Cuba, and Mexico. Canadian postage is 30c per year. For all other countries in the Postal Union add 60c per year postage.

CHANGE OF ADDRESS. When a change of address is ordered, both the new and the old must be given. The notice should be sent two weeks before the change is to take effect.

DISCONTINUANCES. Notice is given just before expiration. Subscribers are urged, if unable to make payment at once after expiration, to notify us when they can do so. Any one wishing his subscription *discontinued* should so advise us upon receipt of the expiration notice; otherwise it will be assumed that he wishes GLEANINGS continued and will pay for it soon.

HOW TO REMIT. Remittances should be made by draft on New York, express-order or money-order, payable to the order of The A. I. Root Co., Medina, Ohio. Currency should be sent by registered letter.

AGENTS. Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

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Foreign subscribers can save time and annoyance by placing their orders for GLEANINGS with any of the following authorized agents at the prices shown:

PARIS, FRANCE. E. Bondonneau, 120 Avenue Emile Zola.

Per year, postpaid, 8 francs.

GOODNA, QUEENSLAND. H. L. Jones. Any Australian subscriber can order of Mr. Jones. *Per year, postpaid, 6 1/7 p.*

DUNEDIN, NEW ZEALAND. Alliance Box Co., 24 Castle St. *Per year, postpaid, 6 1/7 p.*

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ALBANY.—We can quote only a dull, featureless market for honey this week in both comb and extracted. Prices are nominally what they were in our last. Stock of comb is light, but demand is lighter. Extracted stocks are quite heavy, and prices must favor the buyer from now on. Beekeepers should realize that the time to sell honey is the beginning of the season—September and October—for best and prompt sale. We quote beeswax at 32 cts.

Albany, N. Y., Jan. 24. H. R. WRIGHT.

DENVER.—Our local market is well supplied with honey, and our jobbing quotations are as follows: Strictly No. 1 white, per case of 24 sections, \$2.70; choice, \$2.57; No. 2, \$2.43; extracted white, 8 to 9 cts.; light amber, 7 to 7½. We are in the market for beeswax, and pay 30 cts. per lb. in cash, and 32 in trade, delivered here.

THE COLORADO HONEY-PRODUCERS' ASSOCIATION,
Denver, Col., Feb. 9. FRANK RAUCHFUSS, Mgr.

KANSAS CITY.—The demand for both comb and extracted honey is very light, especially for comb. Receipts of extracted are light, but receipts of comb honey are large. We quote No. 1 white comb 24 sections per case, \$2.60 to \$2.75; No. 2 ditto, \$2.40 to \$2.50; No. 1 amber ditto, \$2.75; No. 2 ditto, \$2.25 to \$2.50; extracted white, per lb., 8 to 8½; extracted amber, 7 to 8. Beeswax, per lb., 25 to 30.

C. C. CLEMONS PRODUCE CO.

Kansas City, Mo., Feb. 2.

ST. LOUIS.—Our local market is well supplied with honey, and trade has been somewhat quiet on account of mild winter. We are quoting to-day fancy white honey, 15 to 16; light amber, 14 to 15; amber, 12 to 13, and dark amber, 9 to 11. By the case, 24 combs to the case, fancy white brings \$3.25 to \$3.50; light amber, \$3.00 to \$3.25; amber, \$2.50 to \$2.75; dark and broken combs, less. Beeswax, 32½ for prime. Inferior and impure sells for less.

R. HARTMANN PRODUCE CO.

St. Louis, Mo., Feb. 7.

LIVERPOOL.—The honey market is quiet; 100 barrels sold at \$7.20 for pile 1; \$5.88 to \$6.00 for pile 3, and \$5.40 for No. 1 pile. The terms pile X, 1, 2, etc., are used to distinguish the qualities of the honey; for instance, honey, quality pile X, is white in color; pile 1 is white to yellow in color; pile 2 is yellow in color; pile 3 is yellow to brown in color; low pile is fermented honey, etc. Of Chilian beeswax there is no stock here, but the inquiry is good. Value \$37.62 to \$42.48 per cwt., as to quality.

Liverpool, Eng., Jan. 21. TAYLOR & Co...

AS IT IS TO-DAY.

Do you know *The Youth's Companion* as it is to-day—enlarged, improved, broadened in its reach of human interests? You may remember it as it was. You ought to know it as it is now. You will be surprised at what a year's reading of *The Companion* will do for your family. No American monthly magazine offers such a quantity of reading, and it comes weekly, too.

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No other American periodical covers the same field of interest or offers such a quantity of reading at as low cost. No other publication furnishes more inspiration or entertainment, or enjoys greater confidence.

If you are not familiar with *The Companion*, let us send you three current issues free, that you may thoroughly test the paper's quality.

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for your money. This is what our Banking-by-Mail plan affords you, no matter where you live. The Savings Deposit Bank Company is a conservatively managed institution under strict

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There is no safer place for your savings, or more convenient, because, when you bank by mail, you can deposit and withdraw money just as easily as though you lived right here in Medina. Let us tell you more about it. Write for free booklet.

THE SAVINGS DEPOSIT BANK CO. MEDINA, OHIO

A.T. SPITZER, Pres.
E.R. ROOT, Vice-Pres.
E.B. SPITZER, Cashier

ASSETS OVER ONE MILLION DOLLARS

How to Keep Bees

BY ANNA BOTSFORD COMSTOCK

This is an excellent book for the beginner. Nothing better. We cordially recommend it to all who are learning beekeeping by their own effort. Having commenced beekeeping three times, the talented author is in a position to furnish the right kind of advice. You can not go wrong in getting this book. It is charmingly written and easily understood. Price \$1.10 postpaid.

THE A. I. ROOT COMPANY, MEDINA, OHIO

Gleanings in Bee Culture

DEVOTED TO HONEY, BEES, AND HOME INTERESTS.

A. L. BOYDEN, Advertising Manager.

Established 1878.

CIRCULATION 35,000.

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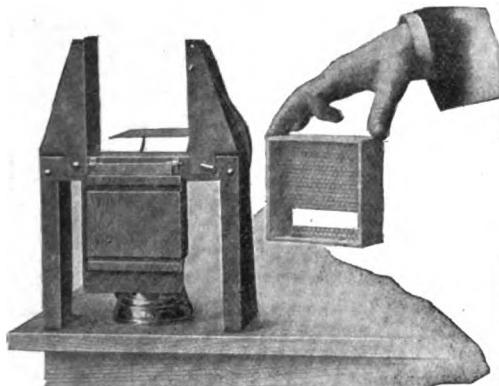
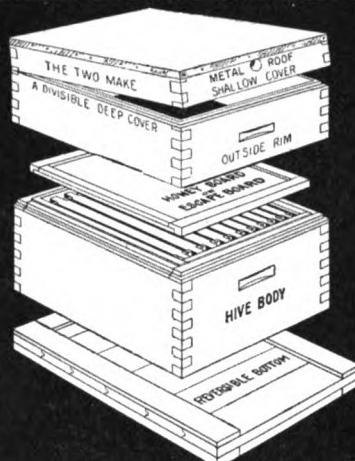
PROTECTION HIVE

The Shallow Metal-roof Cover and the outside rim make a divisible deep cover which can be handled together or in part. They eliminate the chaff-tray nuisance and the heavy bunglesome deep cover in manipulation. The rim holds the overhead packing in winter, and acts as a super protector at other times. This combination is the finest in hive construction on the market to-day.

Dead-air spaces or packing, as you prefer; $\frac{1}{8}$ material in the outer wall. Special circular showing 16 large illustrations will explain all.

Five 10-frame hives like cut, \$18.00.

A. G. WOODMAN CO., Grand Rapids, Mich.



WOODMAN'S SECTION - FIXER

A NEW MACHINE of pressed steel for folding sections and putting in top and bottom starters, all at one handling. A great time-saver, and a good job assured with ease. With top and bottom starter the comb is firmly attached to all four sides—a requirement to grade Fancy. Increase the value of your crop this season by this method. We want every one to try this machine. We guarantee satisfaction. Adjustable to any width— $4\frac{1}{4} \times 4\frac{1}{4}$ or 4x5 section. Model received with much favor by recent Detroit and Chicago beekeepers conventions. Price \$2.50 f. o. b. Wt. 5 lbs. Send for special circular showing large illustrations.

A. G. WOODMAN CO., GRAND RAPIDS, MICH.

**MAKE MORE MONEY
FROM
BEEs**

BLANKE'S BEE-
BOOK FREE . . .

Johnnie-on-the-Spot Deliveries

When you order Bee Goods you want them "now." We are in the very heart of the Bee Section—no city with so good package-car service—largest stock west of the Mississippi. Whenever possible orders shipped same day as received—more carefully packed than ordinary.

BLANKE'S BEE BOOK FREE—a catalog filled with helpful tips for either beginner or old timer. Write to-day before you need supplies.

Department 2

**Blanke Mfg. & Supply Co.
St. Louis, Mo.**

G. B. Lewis Co. Make of Beekeepers' Supplies at Factory Prices

Satisfaction guaranteed, or your money refunded. Liberal discount for early orders. Special to new customers. Please drop me at once a card for our catalog.

W. H. Freeman, Peebles, Ohio.

When Ordering Supplies

remember we carry a full stock and sell at the lowest catalog price. Two lines of railroad—Maine Central and Grand Trunk. Prompt service and no trucking bills.

THE A. I. ROOT CO., Mechanic Falls, Maine
J. B. MASON, Manager



GREIDER'S FINE CATALOGUE
and calendar of pure-bred poultry for 1914, large, many pages of poultry facts, different breeds in natural colors, 70 varieties illustrated and described; incubators and brooders; low price of stock and eggs for hatching. A perfect guide to all poultry-raisers. Send 10c for this noted book.
B. H. GREIDER, Box 60, Rhinebeck, Pa.

GOLDEN ITALIAN Queens

Reared from straight five-band mothers, mated with select golden drones, 3½ miles from three-band apriary. These queens are large, vigorous, and prolific; the bees gentle and hustlers, and are noted throughout the U. S. as a disease-resisting strain. Purity of mating, safe arrival, and satisfaction guaranteed.

QUEENS	May 1st to June 1st			June 1st to July 1st			July 1st to Nov. 1st		
	1	6	12	1	6	12	1	6	12
Untested	\$ 1.25	\$ 6.50	\$11.50	\$ 1.00	\$ 5.00	\$ 9.00	\$.75	\$ 4.00	\$ 7.50
Select Untested.....	1.50	7.50	15.50	1.25	6.50	12.00	1.00	5.00	9.00
Tested	2.00	10.50	18.50	1.75	9.00	17.00	1.50	8.00	15.00
Select Tested	2.75	15.00	27.00	2.50	13.50	25.00	2.00	10.00	18.00

Breeders, \$5.00 to \$10.00.

Queens for export will be carefully packed in long-distance cages, but safe arrival is not guaranteed.

BEN G. DAVIS, SPRING HILL, TENNESSEE

Special Sale of Honey

WE HAVE produced a fine lot of extracted honey this season from our eight out-yards. In addition to our own honey, we have purchased many other lots from prominent producers, and are now able to offer for prompt shipment the following flavors of extracted honey :

ALFALFA,	ORANGE,
SWEET CLOVER,	LIGHT AMBER,
WHITE CLOVER,	DARK AMBER,
BASSWOOD,	BUCKWHEAT.

Several of the last cars of comb honey which were shipped us in 1915 contained a large number of cases of broken comb honey, caused by the cars being badly handled in transit.

We are obliged to regrade all shipments; and in every case where we found broken combs we melted them up. All the combs that are slightly cracked or have the cappings broken, we put into other cases; and these cases of cracked comb honey, which is practically all produced from white clover, we are offering at a special low price and at prices which we believe will certainly be of interest to you; and we know that, if you will send us in an order, you will be pleased with the honey at the prices we are asking for it.

We have other choice grades of Fancy and No. 1 white comb honey, as well as Fancy and No. 1 amber comb honey, and during these months we are making special prices to our regular trade.

A request will bring special prices.

The A. I. Root Co., Medina, O.



BUY CARNIOLANS IN CARNIOLA

Pure Carniolan Alpine bees. Write in English for booklet and Price list... Awarded 60 honors.

JOHANN STRGAR, ... Wittnach
P. O. Wocheinor Feistritz, Upper
Carniola (Krain), Austria

This is the season for discounts on Bees and Bee Supplies

If you will send us a list of goods needed we will be pleased to quote you on them. Catalog free.

I. J. STRINGHAM, 105 PARK PLACE, NEW YORK
Apianics, Glen Cove, L. I.

Marchant's Island Bred Queens

Bred from selected mothers, and mated to isolated drones of a different strain. My aim is quality and not quantity. So if you want any of these choice purely mated queens order now or you may not get them as I am going to rear only a limited number. No disease, and your money back if not satisfied. The A. I. Root Co. use my queens, which is proof of their quality. No need to write for lower prices.

Reference, The American Exchange Bank of this city.

Prices—Untested, single, \$1.50; 6 for \$6.00; 12 for \$10.00; in lots of 25 or more, 75 cts. each. Select tested, \$3.00. Breeders, \$5.00 and \$10.00.

A. B. Marchant, . . Apalachicola, Florida

AUTOMOBILES! 500 USED AUTOS

Guaranteed by the owners.
Write for list.

Wm. F. Wagner Auto Garage
Massillon, Ohio

BEE SUPPLIES Send your name for new 1914 catalog out in January. Dept. T. C. C. CLEMONS BEE SUPPLY CO., Kansas City, Mo.

FRENCH'S

THE ORIGINAL POULTRY MUSTARD IN AMERICA

Write to us for information.
Booklet and circulars free.

THE R. T. FRENCH COMPANY, Mustard-Makers
ROCHESTER, N. Y. Department D.

Beeswax Wanted!

We Expect to Use
SEVENTY TONS

of beeswax during the next SIX MONTHS, and we have on hand less than twenty tons. We offer for good average wax, delivered at Medina, 32 cts. CASH, 34 cts. TRADE. If you have any good wax to sell write to us or ship it by freight. Send us shipping receipt, giving us gross weight also net weight shipped. Be sure to mark your shipment so we can identify it when received.

Beeswax Worked into Foundation

If you want your wax worked into foundation we are prepared to do this for you at prices equal to those made by other standard manufacturers. Write for price if interested.

The A. I. Root Co., Medina, Ohio

Are You Interested.....

In securing a crop of honey this coming season? Send us your name and address for 1914 catalog, and make selection of the hive and appliances. You should have a good year if you are prepared as the honey yield begins.

The A. I. Root Co., Syracuse, N. Y.
1631 West Genesee Street

"If goods are wanted quick, send to Pouder."

ESTABLISHED 1889

Bee Supplies

Bees in this zone are in winter quarters with a bounteous supply of natural winter stores, and I believe that no other feature is quite so important as regards safe wintering as an abundance of wholesome stores. The fall flow was so profuse that in some instances brood-rearing was curtailed early on account of crowded condition, and some strong colonies were weakened on this account. A few losses may result from this condition. The white clover in this zone is in good condition with the exception of a few counties which suffered from drouth. Conditions for ensuing year are very encouraging for both beekeeper and the supply-dealer. The last year will be remembered as a most excellent honey year, and with it came the best demand for honey that has ever been known. I am receiving more inquiries and orders for Root Bee Supplies than ever before during midwinter, and some discounts for early orders are still available. The policy of this house as to prompt shipments and a fair and satisfactory deal will be maintained as heretofore, and I hope to deal with you in a way that will justify your recommending my goods to your neighbor.

WALTER S. POUDER:—*I am more than pleased with your promptness. Kentuckians are generally credited as being quick with a gun, but I do not think the fastest in that line can equal the speed a certain Indiana man uses in shooting out the goods. Those paper honey-jars are certainly the trick for local trade.*

Louisville, Ky.

*Yours truly,
OTTO F. RECKTENWALD.*

I should like to place in your hands my catalog with 1914 revised prices on bee supplies. Or send a list of your requirements, and let me see if I can not create a saving for you by quoting an estimate. This will place you under no obligations, and it will be one of my pleasures.

I can use more beeswax, and am now paying 31 cents cash or 33 cents in exchange for goods.

Walter S. Pouder
873 Mass. Ave., Indianapolis, Indiana

Hives-- The Buckeye chaff hive,
The Root Dovetailed hive,
The Danz. comb-honey hive.

Sections - - All sizes and all "Root Quality."

Foundation - The Root-Weed process (It's the best)

Beeswax - - We want it; top market price paid.

Berry-baskets-Let us quote you prices on them.

Send for 1914 Catalog

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Per Cent
Cash
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During
February**

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PRACTICE

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The A. I. Root Co.

INCREASE Your SALES ... By a Liberal Distribution of Our Booklet ... THE USE OF HONEY IN COOKING

The 1913 edition is ready for distribution, and may be had in quantities at reasonable rates. The back cover page affords space for a display advertisement. As this booklet contains no advertising whatever, it can be employed with telling effect. Be sure to order your supply early. Samples and prices in quantities on application.

Fifty-eighth page; one hundred and twenty-five valuable recipes in which honey is used. Just the book for every household. A two-cent stamp will bring a copy.

Address the Publishers

THE A. I. ROOT COMPANY, MEDINA, OHIO

Are Your Bees Short of Stores?

We have candy in large paper pie-plates just right for late winter and early spring feeding. Write for prices. We carry a full line of supplies at all times.

H. H. JEPSON
182 Friend Street BOSTON, MASS.



Beekeepers' Supplies

Our 1914 64-page catalog ready to mail you free. . . Can make prompt shipment of regular-stock goods, as we have a good supply of The A. I. Root Co.'s goods on hand. The rush season will soon be on hand. Our freight facilities are good. Small packages we can rush through by parcel post. Express rates are much lower now also. Let us quote you. Let us hear from you. Beeswax taken in exchange for supplies or cash.

JOHN NEBEL & SON SUPPLY CO.
High Hill, Montgomery Co., Mo.

"Griggs Saves You Freight"

TOLEDO

"Griggs Saves You Freight"

New goods arriving permits us to fill orders same day as received, and this, with direct lines to your door and low freight rates, makes TOLEDO the best place to order your goods from.

Our NEW ILLUSTRATED CATALOGS for 1914 are here and being mailed out. Send your name for one.

Send us list of goods wanted and receive our SPECIAL PRICES for quantity orders. BEESWAX is in great demand. Send it in now. We pay 82c cash, 34c in trade. Shoot it in.

S. J. GRIGGS & CO., - 26 NORTH ERIE STREET, - TOLEDO, OHIO
"Griggs is Always on the Job"

When You Buy Lewis Beeware

... You Get . .

LEWIS QUALITY.—Which means that all Lewis Hives are made out of clear white pine, and Lewis Sections made out of fine white basswood. Material in these goods is the best obtainable, selected by experts.

LEWIS WORKMANSHIP.—The Lewis Factory is equipped with the latest improved machinery, constantly watched over by experts. The Lewis head mechanic has 36 years of bee-supply experience; the superintendent of bee-hive department 30 years; the superintendent of sections 29 years. These and many other skilled men have a hand in all the Lewis goods you buy.

LEWIS PACKING.—All Lewis Beeware is carefully and accurately packed—a patent woven wood-and-wire package made only by the Lewis Company is employed largely in packing; this makes the package light, compact, and damage-proof.

LEWIS SERVICE.—Years ago all goods were shipped direct from the factory with attending high freight-rates and delays during the honey season. NOW Lewis Beeware can be obtained almost at your own door. Over 30 Distributing Houses carrying Lewis Beeware by the carload are dotted all over the United States and foreign countries. Write for the name of the one nearest you.

Our New 1914 Catalog is Now Out. Send for One

G. B. LEWIS CO., Manufacturers of BEEWARE **Watertown, Wis.**

HAVE YOU SEEN IT?

... THE ...

NEW American Bee Journal

IT PLEASES

Allow me to congratulate you on the improvement of the *Journal*. It certainly hasn't lost anything in changing hands. I noticed at the Des Moines convention many spoke encouragingly of the way the paper has been handled since the Dadants got it. You can "count on me." Center Junction, Iowa.

W. S. PAUGHBURN.

NEW Editor NEW Cover NEW Manager

Select Material

Illustrated

Free Sample Copy

\$1.00 a Year

C. P. DADANT

DR. C. C. MILLER

American Bee Journal, Hamilton, Illinois

Gleanings in Bee Culture

Published by The A. I. Root Co., Medina, Ohio.

H. H. ROOT, Assistant Editor. E. R. Root, Editor. A. L. BOYDEN, Advertising Manager.
A. I. Root, Editor Home Department. J. T. CALVERT, Business Mgr.

Entered at the Postoffice, Medina, Ohio, as second-class matter.

VOL. XLII.

FEBRUARY 15, 1914

NO. 4

Editorial

INDICATIONS for another good honey year are exceedingly favorable throughout the country. Snows and rains have put the soil in fine condition for the clovers. Abundant rains in California practically assure a sage crop.

A NEW WAY OF MAKING BEE-CANDY FOR WINTER FEEDING.

IN this issue, p. 141, our correspondent, Mr. A. V. Small, calls attention to a very simple and what we believe to be a very feasible plan for making bee-candy for winter feeding. We hope some of our readers whose colonies may be running short will make a trial and report.

SIMPLIFYING OUR NOMENCLATURE.

THE suggestion comes from Dr. Miller, through the Dadants, that in the future we write the words "foul brood" as one word, "foulbrood." We entirely agree with the suggestion; and the very fact that we have made as one word for the last two years such words as beehive, beehouse, beekeeper, beekeeping, beemaster, beesting, and beeswax, consolidating them as one word, makes it easy for us to adopt foulbrood.

FURTHER PROSPECTS IN CALIFORNIA.

REPORTS continue to come in telling of the amount of rainfall in California. The number of inches varies according to the particular locality, of course, but there is no doubt that prospects on the coast are brighter at this time than they have been for a good many years. Most of the rain, too, has "soaked in." The following from C. H. Clayton, at Los Angeles, is indicative of the tenor of the reports in general.

We are having fine growing weather—as fine as we have even seen at this time of the year. Last year at this time we had 2.95 inches of rain. This year to date we have had over 15 inches.

ARTIFICIAL SUBSTITUTES FOR NATURAL POLLEN.

SEVERAL schemes have been proposed for supplying the bees with pollen artificially when the natural article is not available by reason of peculiar weather conditions or the scarcity of the sources of supply. Some

progress is being made, but we should be glad to get reports from others who have discovered means by which we can make our bees rear brood on artificial substitutes in the cellar, or outdoors when the weather is inclement.

OUR COVER PICTURE.

THE view shown on the cover of this issue shows one end of the apiary of J. A. Nininger, of Nickerson, Kan. Mr. Nininger writes that the picture was taken in the fall of 1912, at which time there were 39 colonies that had averaged about 50 pounds of comb honey each. The honey was mostly from alfalfa, which, together with smartweed and heartsease, are the principal honey-plants in the locality. The smartweed honey is dark and strong, but there are some who will have nothing else if they can get it. The flow commences about the last of July or the first of August. The colonies build up on it in fine shape for winter.

Ten-frame hives are used throughout. The high stack of supers shown are extracting-supers set over a hive for the bees to clean up.

The colonies are wintered on the summer stands; but a super is put on filled with packing material, then several thicknesses of newspaper are wrapped around, and tar-paper placed over the whole. During the winter of 1911-12 the cold was very severe, the thermometer registering 24 below zero. There was considerable snow, however, which was in the bees' favor. All came through in good condition and built up early in the spring with the exception of two colonies which had no protection. More than twice the average number of bees had died in these two colonies.

THE VALUE OF HONEY RECOGNIZED BY WHOLESALE GROCERS.

WE note with pleasure that the large wholesale grocers in the country are beginning to recognize the peculiar valuable features of honey as a food as they never have before. Many of them are making special displays, and are featuring honey as it deserves to be featured, instead of letting

it sell itself in a haphazard way as is so often the case.

In a large catalog of the wholesale grocers, Acker, Merrill & Condit Company, sent us by one of our subscribers, J. M. Thore, there are articles written by experts along the various lines describing the different articles of food, how made, etc. The article on honey is ably written by one who knows not only the science of honey, but how to write of it in an interesting way. Mention is made of the well-known fact that honey may be eaten safely by many persons who dare not eat sugar. The article ends with several good recipes using honey in making cakes, puddings, etc.

ALWAYS SIGN YOUR NAME TO CONTRIBUTIONS.

Quite a number of our subscribers when asking questions or sending in an article for publication do not sign their names, but sign instead "Subscriber" or "Beekeeper." We are able to answer in GLEANINGS only a small part of the questions that we receive. We reply to the rest by letter; and if no name is signed we are helpless unless it so happens that there are no other subscribers at the particular postoffice indicated by the postmark. Furthermore, we are frequently obliged to write for more particulars before an answer can be given in GLEANINGS; and if the name is not given we are put to considerable inconvenience, and many times we can simply hold the communication awaiting another letter, possibly a complaint, later on. If for any reason you do not wish your name to appear in case your letter is published, simply mention the fact and your wish will be complied with.

"Subscriber" at Brooksville, Ky., will find the Miller smoke method of introducing fully described on page 370 of the June 1st issue for 1913.

THE HARD CANDY SOFTENS AND MELTS IN THE HIVE.

There have been two reports of the hard candy made according to the directions in our January 1st issue softening when placed over the combs to such an extent that it melted and ran down, killing bees. We have made and used quite a large quantity of this candy, and we have had very little trouble, although this year (see editorial elsewhere) it has seemed softer than usual. It is likely that the conditions within the hive have a great deal to do with the consistency of the candy after it is placed over the combs. If the air is heavily charged with moisture the candy absorbs water more easily than in another hive where the air is drier. However, perhaps it may be well to reduce

slightly the amount of honey used. Instead of one pint of honey to twenty-five pounds of sugar as specified in the January 1st issue, perhaps one pint to thirty-five or forty pounds of sugar would be safer. If no honey is used at all the cake is likely to assume a granular form so that much of it is wasted.

CONDITIONS FOR CELLAR BREEDING.

In order to get bees to breeding the temperature in the cellar must be warmer than is customary for orthodox wintering. The bees must be disturbed more or less, and fed continually. Candy of the right kind is better than a syrup or sealed stores in the combs. Higher temperature, disturbance, and continuous feeding are necessary for brood-rearing. It is understood, of course, that there should be pollen in the combs. Without a nitrogenous food there will be no brood-rearing.

Caution.—The average beekeeper should try out cellar breeding on a small scale. Try a few colonies first. If you succeed with these try more another winter. It has its dangers, and before one can succeed with it he must have experience, and some of it of the kind Josh Billings tells about.

A NEW OLD SCHEME FOR GIVING BEES WATER IN MAILING-CAGES.

We believe that the method of giving bees water when shipping them long distances by mail is going to solve the problem of sending bees across continents, and perhaps around the world. We expect to give our new method a thorough test from Apalachicola this winter. Illustrations of the new scheme will be given later. The reason why we feel optimistic is because Mr. A. I. Root, some thirty years ago, tried out almost precisely the same thing, and he demonstrated beyond a question that it was a success. But the Good candy he used at the time caused him to abandon the water-bottle scheme for candy. It is rather funny now that we are discovering at this late date that the water-bottle scheme is a practical necessity.

Our experiments last summer were not entirely satisfactory, in that our water-containers had a fashion of leaking and wetting down the candy before the bees arrived at their destination. The new containers we have devised make this practically impossible.

ADULTERATION IN GERMANY.

Our correspondent from Germany, in this issue, page 132, calls attention to the immense quantity of adulterated honey that is sold in that country. The beekeepers of the

United States can hardly appreciate the great benefits we are enjoying under our national pure-food law supplemented by our State laws. The adulteration of honey here has practically ceased.

The same correspondent, on page 133, says, "Chemists to-day have no method by which adulteration may in all cases be proven." That may be true in Germany, on account of the diversity of sources from which their honey is gathered; but it is not true in the United States. Any packer is taking a long chance if he adulterates honey in this country.

We especially recommend that our German brethren get busy and secure a national pure-food law; and, when once enacted, we feel satisfied their chemists will be equal to the occasion. Germany has men of science who are second to none; and if they can not detect *all* species of adulteration it is because they have not given the matter attention on account of a lack of a pure-food law.

E. R. ROOT'S TRIP TO FLORIDA.

We are just leaving for Baltimore to take the boat for Jacksonville. After spending a couple of days at that point we shall go direct to Apalachicola where we have 300 colonies of bees, arriving there between the 16th and 17th. We shall remain at that point for three or four days, when we shall go to Bradenton, where A. I. Root is, arriving there the 21st or 22d. We shall remain in Bradenton for two or three days, when we shall go to Stuart, Fla., and from there go with Mr. W. A. Selser. We expect to spend two or three days at that point, visiting the territory in Mr. Selser's launch. We will go on to Palm Beach, then take another launch for a cruise of five days down to the Keys, stopping at Pompana and Miami. We expect to return to Medina about March 10.

We shall be accompanied by Mr. Geo. M. Gray and wife, of Fostoria, old college mates; and while we go on business and pleasure, *they* will seek pleasure only.

Our purpose in going south at this time is to see what our bees on the Apalachicola River are doing, and to determine whether the scheme of moving a carload of bees south to that point will prove profitable. So far, our Mr. Marchant reports that every thing is coming out according to schedule. Just how many bees we shall bring back—well, we will not say now. Let the future tell.

Our purpose in visiting the extreme southern part of Florida is to determine whether it will be possible to establish a queen-rearing yard that can be maintained the year

round, supplying queens any month of the year.

Of course, we shall be supplied with cameras, and our readers shall have the benefit of our investigations. Soon after E. R. Root returns, H. H. Root will go down to Apalachicola to be present during the extracting season.

THE MODERN SHAKE METHOD OF CURING FOUL BROOD DEFECTIVE.

The ordinary modified McEvoy method for curing foul brood in brief involves the process of shaking or brushing bees from diseased combs on to frames of foundation in a clean hive. Mr. A. F. Wagner, in this issue, page 137, calls attention to the fact that such treatment will result in bees swarming out in many cases. Our own experience and observation, as well as reports from others, confirm the statement. In some cases it means the loss of the colony, and perhaps in others the danger of spreading disease to a bee-tree or another hive.

Quite a number of our correspondents, including Mr. Wagner, to avoid this swarming out have suggested leaving in an old comb temporarily as a bait to hold the bees, or, as Mr. Wagner suggests, putting in a single frame with a starter in the diseased hive; and after the bees have drawn it out, and filled it with honey, remove all the combs and substitute frames of foundation, leaving the first frame as a bait to hold the bees. To shake or brush the bees into an entirely different hive on frames of foundation is such a radical change of environment that swarming out is very apt to occur, especially if the treatment is administered during the middle hours of the day; and even when practiced at night we have noticed that the bees will often swarm out the next morning. While we do not believe that such bees when they swarm out carry infection to other hives, there is a possibility of it, especially where the act of shaking causes them to gorge themselves with diseased honey—honey that they may hold for a day or two until they get into their permanent quarters. We believe the time has come when the orthodox treatment for American foul brood should be modified in such a way that there will be no danger of absconding.

OUR WINTERING EXPERIMENTS AT MEDINA; FEEDING HARD CANDY.

We are wintering our northern bees in two cellars. Those in the warehouse cellar are being wintered along orthodox lines. The temperature is maintained at about 45 degrees without disturbance or feeding.

Many of the colonies in the upper cellar are being fed dry hard candy, and breeding has been going on rapidly; but, unfortunately, the candy this year had too much honey in it. (See editorial elsewhere.) Some of it, and we might say much of it, has been so soft that it ran down on the bees. Fortunately, we discovered it before much damage had been done. But the extreme softness of the candy caused the bees to consume more than was needed for brood-rearing, with the result that signs of dysentery began to show on some colonies. Fortunately we had three or four days of warm balmy weather when the bees were taken out of the cellar and given a nice flight. The soft candy was removed, and in the mean time breeding had progressed very satisfactorily in most colonies. While the bees are still outside, they will be put inside to avoid the threatened blizzard. More anon.

We asked our Mr. Mel Pritchard, who has worked our basswood beeyard for some years, how much brood-rearing he had noticed in the hives in and out of the cellar for years back. We remarked that some skepticism had been shown to the effect that cellar breeding would result in disaster. "That is a joke," said Mr. Pritchard. "For years and years I have noticed brood in hives in the cellar, sometimes in January and February. This brood hatched out, notwithstanding the colonies had had no flight until they were set out in April."

We have ourselves observed that breeding continues in our cellars. Once or twice we have noticed that our cellared colonies have come out stronger than when they went in. Two years ago this present winter after it turned so cold we put our Carniolan apriary in our machine-shop cellar in midwinter when it was bitter cold. We placed this yard inside because the colonies were so weak that we knew they would not survive a month outdoors. When we took them out in the spring they were very strong, and the only lot of bees that severe winter that wintered well, while the outdoor bees were weak and dwindling.

STANDARDIZATION OF BEEKEEPERS' SUPPLIES.

A COUPLE of years ago Dr. Burton N. Gates, President of the National Beekeepers' Association, called attention to the variation in our standard hives and frames as put out by manufacturers throughout the country; that under present conditions the beekeeper was almost under the necessity of continuing with the same style of goods with which he started.

An effort is being made on the part of manufacturers to standardize goods. For example, more and more the manufacturers

are adopting the same styles and sizes of shipping-cases. In years gone by, the multiplicity of sizes and styles was most confusing to the beekeeper, and expensive for the manufacturers and dealers to maintain. Now the styles and sizes have been reduced to a very few; and it is to be hoped that the time will speedily come when the beekeeper can buy shipping-cases anywhere, and have them match those he already has on hand. More and more the novelties in hive construction are being eliminated. The tendency is most decidedly toward the simple ten-frame Langstroth hive, without portico. Bottom-boards are plainer and stronger, hive-covers are becoming less numerous in design, and the something-new-under-the-sun hive or hives have all but disappeared. 'Tis well.

Incidentally, we believe that the plan suggested by Charles Howell, page 151, will do away with one of the odd-sized sections, namely, the $4\frac{1}{4} \times 4\frac{3}{4}$. We see no objection to the plan—on the contrary there are certainly many advantages. The springs, if they are too stiff, must be weakened by being bent backward somewhat; otherwise the top-bar will be bowed up out of line.

At the present time there are the ten and eight frame hives, both of which require a complete layout of supers, escape-boards, honey-boards, covers, and bottoms. If the ten-frame hive becomes the standard it will mean a large saving to the manufacturer and dealer as well. Just a few years ago the majority of hives sold were the eight-frame. Now the ten-frame outnumbers the former nearly three to one.

Mr. Louis H. Scholl has something to say about standardization of hives and fixtures; and on this subject he says in this issue, p. 129, "My own experience has taught me that, on the average, a colony in a ten-frame hive is usually just so far ahead of one of eight-frame capacity as the difference made by those two extra frames after the combs are built out."

The day is not far distant when the eight-frame will be eliminated. The twelve-frame hive may have some advantages, but it is too heavy for the average person to lift. If a larger capacity is needed, it can be easily secured by means of an upper story with half depth or full depth. The ten-frame hive may be made a fifteen-frame or twenty-frame capacity by tiering up with the great advantage of having a unit of such a size that an ordinary man can lift it. The sixteen-frame hive, for example, would require two men to handle it; and in these days of outapiary work and moving bees, the unit of hive construction should be of such a size that an ordinary man can handle it.

Stray Straws

Dr. O. C. MILLER, Marengo, Ill.

NOTABLE is an ad. in the Swiss bee journal of a hotel and sanatorium desiring to buy honey. Our hotels haven't got up to that yet.

WALTER S. PODER'S package for sending candied extracted by post leaves nothing to be desired unless it would be to take an inch from its height and add a trifle to its diameter.

THE uncapping-fork, claimed to be better than the knife, has not yet got this side the ocean, and now comes an ad. in *Schweizerische Bztg.*, by J. Arter, offering an uncapping-plane claimed to be better than knife or fork. Price \$1.68.

I'M asked to give in detail the different steps that led to last summer's crop. If I were to do that in full it would take up too much space in GLEANINGS. Besides, I've given it all already, for we followed exactly the plans given in "Fifty Years among the Bees."

LATELY I was told I'd change my mind about paint on hives when I learned that the inside of a hive is coated with impervious propolis. Well, I'll quote my answer from my good friend of so many years, G. M. Doolittle, who says, p. 49, that the glued surface is "sufficiently porous." I wonder what would be said if I should bring good authority for the statement that enough moisture goes through the propolized inside of a hive to raise blisters on the outside painted surface.

"THERE is nothing special in the 'red-clover' strain, as all hive bees can work the second crop of this plant, although it is impossible for them to work the first," says the editor of the *British Bee Journal*, p. 450. Has that able authority been caught napping, or are things so very different under the British flag? On this side it is a rarity for hive bees to work on the second crop of red clover, yet there have been strains in which there was something decidedly "special," and they would work on second-crop red clover when other bees neglected it. Alas that it is so difficult to continue such strains!

"THE most important spraying was done when the petals showed first signs of falling," p. 94. That's given apparently with commendation; but at this distance it looks like spraying in full bloom. I'd like to know what Prof Surface thinks about it. [We were present when Van Rensselaer & Southam sprayed their trees. As Mr. Van

Rensselaer states, one of the sprayings was applied when the petals showed the first sign of falling. There may be a question as to this procedure. But we had about fifty colonies in the orchard at the time. The bees were not working on trees where the first petals began to fall, the presumption being that nectar is no longer secreted; and Mr. Van Rensselaer stated there were no bees on such trees. We lost no bees, and made good increase at that yard. On the other hand, there is just a little danger that less experienced fruit-growers might do a fearful amount of damage by spraying when the first petals begin to fall. We shall be glad to hear from Prof. H. A. Surface on the point.—Ed.]

ALLEN LATHAM thought the orthodox 21 days was too much for the development of a worker. Didn't say why—just thought so. I thought I'd refer the matter to the bees. I gave an empty comb to a queen Aug. 5 at 3:05 P. M., and took it away at 5:05. As it was the only comb she had, I could be sure the last eggs in it were laid just before 5:05. Then by watching when the very last young workers emerged from their cells I could know exactly what the length of the time was in that particular case. Aug. 25, at 11:55 A. M., I thought I would see how much unhatched brood was still left. Would you believe it? there wasn't a bee left in a cell! So I was too late to find out just how long it was from the laying of the egg to the emergence of the last bee. But this much I do know: that in this particular case the full time for the development of a worker-bee was inside of 19 days 18 hours 50 minutes, and how much inside I don't know. Don't tell me there was some mistake. The top-bar of that frame was plainly marked "XIX," and I can't see any chance for mistake. Likely enough the 21 days was got from a nucleus, while I operated with a full force of bees and in hot weather. I suspect we should learn to say "20 days" instead of "21 days." [There is quite a variation in the time of hatching chickens. When conditions are favorable the hatch will be earlier than when they are otherwise. May not the same rule apply to bees?]

If brood will hatch in 20 days from a *full colony*, and 21 days in a *nucleus*, we ought to know it and make our calculations accordingly. The point is not only of scientific interest, but of practical import as well. We shall be glad to get reports from others.—Ed.]

SIFTINGS

J. E. CRANE, Middlebury, Vt.

That article on European foul brood, page 897, Dec. 15, is worth the careful study of every one who has not had experience with that disease.

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On page 854, Dec. 1, the editor shows the place where the first Langstroth hive was set up, and the vinegar business built up by W. W. Cary & Son. Mr. Nichols, who runs the queen and bee-supply business of the company, recently called here, and he told me that the firm had the past season ground and made into cider some 73,000 bushels of apples.

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That picture of Mrs. McIntyre and family, p. 893, Dec. 15, is well worth a year's subscription to GLEANINGS. If the truth were known I believe we should find many who have been able to secure an education with bees who otherwise might have been unable to do so. I know one man, now president of a college, who found the bees of great assistance along this line. A crop of honey is good, but the crop that Mrs. McIntyre shows is better.

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Here is a nut for beekeepers to crack. If sweet clover is to be introduced as a farm crop, who can better do it than the beekeeping farmers? If these farmers who keep bees can show their neighbors that it pays to raise sweet clover as a farm crop it may soon come into general cultivation. But if beekeepers who may get a crop of forage or seed and a crop of honey from it are unwilling to cultivate it, I fear it will be a long time before beekeepers can persuade the farmers who do not keep bees to try it.

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Good words and true are those of Dr. Miller and Mr. Holtermann, page 811, Nov. 15, on truthfulness in advertising and otherwise. There is another side to this subject. The use of superlatives for almost every thing one is talking about leaves no words to use when that which demands such adjectives comes to pass. When a person describes every little ache and ail as something dreadful, terrible, awful, he has no words to express that which is worse. Nothing in language is more beautiful than the simple, exact truth. If we add to our imperfect knowledge of facts our inability to express accurately in words what we conceive to be the truth, a disposition to magnify or minify or distort the facts, who shall know the truth?

QUEENING WITHOUT DEQUEENING.

The article on this subject by Arthur C. Miller, page 850, Dec. 1, is one of more than usual importance. Most queens will live one year, others for two years, and others even longer, and do well at egg-laying; but often in the spring or early summer we find more or less queens beginning to fail, so that we should like to replace them with young queens of the present season. If we can remove the old queen, and, by the smoke method, replace her at once with a young queen brought from the South, there is little loss but the work of looking up the old queen and the cost of the new one. But if we can introduce a virgin safely while the old one is still in the hive laying even moderately, much will be gained, as eggs and brood in May or early June are of more value than at any other season.

There are several things to be gained. A young laying queen in a colony will, as a rule, increase the vigor of the bees so they will both breed faster and gather honey more rapidly, when it comes. I have often found such colonies among my best for surplus. Such colonies, if left to supersede their own queens, become often so reduced in bees that their surplus is likely to be much below the average. Again, such colonies are much less likely to swarm than those having old queens. Many colonies swarm simply as a result of the supersedure of old queens.

It is not a difficult matter to rear a few queen-cells quite early to near maturity, and then introduce them in a cell-cage into colonies where a young queen is needed. But will they supersede the old queen? I submitted this question to some of the most intelligent beekeepers in Connecticut some three years ago at the Charter Oak Fair at Hartford, and it seemed to be their opinion that a virgin hatched in a colony would not be likely to be killed when first hatched; and later, if she came across the old queen, and they were to test strength to see which would survive, the young queen would be more than a match for the old one. I have been absent from home so much of the time during the three seasons I have had but little opportunity to test the matter. I hope others may do so and report. It seems to me there are large possibilities along this line.

Mr. Merwin, page 851, discusses the same subject, or one closely allied to it—the supersedure of old queens. Here is a problem well worth the attention of any experiment stations that can give it time.

Beekeeping in California

P. C. CHADWICK, Redlands, Cal.

The meeting scheduled for the marketing committee on the third Tuesday in January was postponed, there being no quorum present.

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Bro. Byer and the editor are having a spar over the color of a certain honey. Sic e'm! I had the most fun out of that—was even asked what made the African turn black.

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W. G. Hewes says, page 74, "Bees do not put different grades of honey in the same cell." It may be that Mr. Hewes has his bees educated that high, but I never knew mine to draw the color line.

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Mr. Louis H. Scholl certainly has the sympathy of every beekeeper who knows of his sad misfortune. We in California who have missed a honey crop or two think we are in hard luck; but when a man loses seven out of eleven beeyards by flood he certainly has sustained a great loss.

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Dr. Miller, go slow with those large honey-yield stories. Some people do not swallow them a bit easy. Only a short time ago a gentleman who had never had a big honey crop gave me an awful shock, and almost ruined my reputation by his criticism, because I said that I had a colony in 1905 that put up 500 pounds of extracted honey. Mr. M. H. Mendleson, of Ventura, has a record of 450 pounds on the average for a season—I think he said 1897. Many of his colonies that season exceeded 500 pounds.

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The eyes of the beekeeping public are on the outcome of the Root Co.'s movement of bees to the South for increase as well as to secure two honey crops. The movement of bees from Utah to the orange-groves of the southern part of this State has been going on for some time; and I believe that, as a rule, it has proven a success. Mr. G. C. Matthews, of Idaho, last spring purchased 125 colonies at Whittier, Cal.; increased them to 600, then shipped them to Idaho for the alfalfa crop. Just recently he has returned to this State with his 600 colonies to increase still more, expecting to return all to the alfalfa-fields of Idaho. The distance from Idaho to Orange Co., Cal., is about the greatest I have known of bees in car lots having been shipped. Mr. Matthews is interested with Mr. N. E. Miller.

I wish to call the attention of the California beekeepers to the fact that the time has arrived for us to act on the final campaign for funds for our honey exhibit at the World's Fair. As secretary of the exhibit committee I should be pleased to have every beekeeper from Siskiyou to Imperial County write me as to what they are willing to donate on this exhibit. We want every beekeeper to feel that he (or she) has had an opportunity to aid us. If we can finance our plans, this will be the grandest display of honey and wax ever seen. Write me at your earliest convenience as to what we may expect from you.

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Dr. Miller says on page 764, in speaking of robbers, "Most of them never find out that they *can* rob; but let a bee once get into its little noodle the knowledge that there is such a thing as getting in another hive stores piled up ready to hand," etc. You are right, doctor, and I just want to emphasize what you say. Bees that get started to robbing badly will never entirely give it up until they give way naturally to a generation following that has not acquired the habit. One of the first things I always instruct my help about is, *not* to leave any honey or combs containing honey exposed to the bees. There are times, when honey is coming in freely, when it would do no particular harm; but it is best to make a practice of keeping every suspicion of trouble under cover.

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One of the most beneficial rains we have received for several years began falling Jan. 9, continuing for five days. The average for the southern half of the State was nearly four inches, while the northern half received a larger amount. The weather during the entire winter has been warmer than usual, with but very little north wind at any time. I have never seen prospects brighter at this time of the year than at the present time (Jan. 25). Should the winter continue wet and warm, as now seems highly probable, we shall doubtless get a bountiful honey crop the coming season. The condition of bees is satisfactory, considering the season of dearth we have passed through. Some feeding is in progress, and much will be done later; but we shall be relieved sooner than usual by the abundance of wild flowers that are sure to come earlier.

Later.—Another very heavy rain is falling.

Beekeeping in the Southwest

LOUIS SCHOLL, New Braunfels, Texas.

BULK COMB HONEY DURING THE WINTER MONTHS.

During the first years of bulk-comb-honey production in Texas, the home of this product, every precaution was exercised to dispose of all of this kind of honey before the cool weather of the late fall months and the winter set in. This was done to evade the danger from granulation of the honey, which makes it unmarketable if this should take place. As a result, this effort on the part of the beekeepers has led to a tendency to lower prices toward the end of the season. The beekeepers themselves are responsible for these lower prices to a large degree, in that they offer their bulk comb honey for less money rather than run the risk of having it granulate on their hands. On the other hand, most of the buyers have always discontinued handling honey, and bulk comb honey especially, as soon as cool weather began. This is unfortunate for the beekeeper who is not able to dispose of his crop in time. Some have lost considerably in a few instances.

With the idea of overcoming this difficulty I have experimented quite a good deal during three or four years, with the result that I have been selling and shipping bulk comb honey throughout the entire year. Although I carried over, through last winter, only about 6000 lbs. of both comb and extracted honey for this purpose, there will be at least twice this amount used this year; and the indications now are that this will not be enough to fill all the orders that I am reasonably expecting from the steady rate they have been coming in thus far. In comparison with last year's receipt of orders up to the same time in the winter, I have had more than twice the number already.

The secret of handling bulk comb honey during the winter time is in the manner of packing it. Unlike the methods employed by most beekeepers, that of packing the entire crop as soon as the harvest has been obtained, I have very little packed in advance of orders for it. On the one there is too much danger of the honey granulating before it is sold, or at least presenting the appearance of old honey when it reaches the customer. Newly packed honey displays that fresh appearance of new goods.

For this reason our comb honey is kept in the frames in supers, and the extracted honey in cans. When orders come in, the comb honey is packed in the desired size of packages, and the extracted honey, which has first been heated to a temperature of about

150 degrees F., is poured over it quite hot—not too hot, or it will melt the comb. Usually the extracted honey has granulated in the cans; but this does not matter, as it can be liquefied easily since it must be heated any way.

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STANDARDIZATION OF HIVES AND FIXTURES.

It is rather unusual to notice so few improvements or changes in hives and other beekeepers' supplies in the catalogs as this year. Heretofore our first desire, upon opening one of these catalogs, was to find what new things were added to the list or whether any of those already listed had been changed or improved.

In our opinion the beekeepers are benefited by this greater stability in the supplies, both in the cost of the investment as well as in the greater uniformity of the supplies purchased from time to time. I do not want to be understood as being opposed to improvements of any kind in the hives and the rest of the supplies and appliances. Far from that; for, in fact, I am one "who is guilty" of having been at various times instrumental in bringing about certain changes and improvements in apicultural things; and a few good substantial improvements have but recently been added to the list of the beekeepers' necessities. But I do deplore many of the radical changes and so-called improvements that have been put forward at various times that were so entirely different from the old that great expense was necessary for their adoption. Many such changes have cost beekeepers much money; but they are discarded again, sooner or later, for "something new and better" (?), and perhaps as entirely different as in the first case.

My most earnest desire has always been for a more uniform standard in every thing used by the beekeeper. The less difference in the large numbers of hives, supers, frames, sections, bottoms, and covers, used by the beekeepers of the country, the cheaper can they be manufactured. The same applies to shipping-cases and containers in which we market our crops. It would also mean much toward a reduction in the cost of most other articles used.

The more complicated an article, the more difficult to manufacture; and, consequently, the higher the cost of production. The more numerous the sizes or styles of such articles, the more expensive machinery is needed, all of which costs more money. For that reason greater simplicity and uniformity are

very essential indeed. It would be well to strive toward this end rather than be continually adding a greater number of new-fangled articles to the already large number catalogued.

HIVES FOR EXAMPLE.

The longer I study the question of the size of hives the more convinced I am that the ten-frame width of hive is the nearest to if not the proper size for all parts of the country. The prevailing opinion years ago was that the ten-frame hive was better adapted for the South, but that the eight-frame was better suited for northern localities. It has long been apparent, from the fact that the ten-frame hives have become more popular in the North, that this is a mistaken idea. The further fact that even larger hives, and those of greater width, are used successfully by some beekeepers in the North, is an indication that the ten-frame hive is not too large.

My own experience has taught me that, on the average, a colony in a ten-frame hive is usually just so far ahead of one of eight-frame capacity as the difference made by those two extra frames after the combs are built out. This provides the bees with additional room for winter and spring stores to begin with, and it enables them to spread out their brood-rearing operations so much more that more powerful colonies of bees may be obtained, and these with a lesser desire to swarm on account of the additional room. Such rousing colonies will also do better work in ten-frame supers, especially after they are tiered up several high on the hive. Since the work is over a larger surface, the super work is kept closer to the brood-nest where the bees do better work.

THE EIGHT-FRAME TOO SMALL.

The eight-frame hives proved too small for good results in my yards years ago, and I am sure that those who advocate and use these small hives, even in the North, could obtain better results with the ten-frame hives properly handled. This item alone would be worth something, and in favor of the ten-frame hives if the eight-frame size could be discarded in time. Such a move would be in the direction already suggested—that of decreasing the number of different sizes and also the different styles of hives. It would be more economical, in our opinion, to have only the one size, all ten-frame hives and supers, covers, and bottoms, and such other things as are used with the hives. Besides, there would be less confusion in ordering new goods, and less trouble on this score in the apiaries if only one size of hives were kept.

THE HIVES I USE.

It may be asserted that I am deviating from the very thing that I am advocating in this article because I use a hive that is altogether different from the standard hives in use. Most of the readers know that I am a strong advocate of the shallow-story hives or divisible-brood-chamber hives. But I get better results with this kind of hive, especially since I depend upon a large number of apiaries. With over thirty apiaries scattered over the country, and visited only at what most beekeepers would term long intervals, it has been possible to keep up with the bees, especially during the swarming season, just because certain manipulations were possible that enabled us to reach the end desired.

It must be remembered also that our hives are composed of entirely standard parts. Nothing but supers of the Ideal ten-frame size are used throughout for brood-chambers and all. The regular ten-frame bottom-boards and covers fit every hive made up of these simple supers, and the size of the hives can be enlarged or decreased with the greatest ease. There is only one style and size of frames, and only one kind of foundation is used in all of them, whether they are used in the brood-chambers or in the supers for comb or extracted honey. Neither are any of the frames wired, which is another item in saving in both time and expense.

Since we have tried many styles of hives during over twenty years of beekeeping, testing a number of each kind side by side, we have found that there is quite a difference between the results that may be obtained from the several kinds of hives. The shallow-hive system, incorporating the divisible-brood-chamber hive that we have tried most thoroughly for over fifteen years right beside other styles, both eight and ten frame, gave us the best results; and its very simplicity of construction throughout, together with the interchangeability of the various stories of the hives, has prompted me to make the suggestions for more simple hives, supers, and other beekeepers' supplies, with a view of lessening complications and confusion, and lowering, if possible, the price of our necessities.

Not in the Queen Trade

Will you allow me to state through your columns that I am not in the queen trade? I gave it up twenty years ago. Since I gave my opinion on what constituted a good queen in GLEANINGS I have had a large number of inquiries for queens, and it will save my time and correspondents' if you will publish the fact that I have none to sell.

MAJOR SHALLARD.

South Woodburn, N. S. W., Australia.

Conversations with Doolittle

At Borodino, New York.

THE APIARIST HONEY PEDDLER.

"I have more extracted honey than I shall use this winter; and as the bees have an abundant supply I should like to dispose of it. Do you think that it would pay me to go out into the surrounding country and villages peddling this honey?"

In 1869, when I first commenced to keep bees, the demand for honey was in excess of the supply, and even strained honey sold readily at high prices. But with the seventies came movable frames quite generally, then the honey-extractor, comb foundation, etc. Bee journals multiplied, and through these things the industry was given such a boom that large quantities of honey were produced, and prices began to tumble till the disposal of honey became a more serious problem than the question of production. A little later on, the tide changed from comb-honey production to extracted, as the extracted readily brought fifteen, eighteen, and in some instances twenty cents, when shipped in barrels holding 500 lbs. Up to this time all comb honey was shipped by express, and the high rates and numerous breakages laid heavily on the minds of the producers. Hence, the cheaper freight rates with no danger from breakage revolutionized matters, and much more extracted honey was produced than comb. Then arose the question asked by our correspondent, and many beekeepers went out into the "lanes and byways" selling honey from house to house at a lower price than was realized in the early seventies in 500-pound packages delivered at the railroad station. I was never given to peddling; in fact, I hated such a thing, but the taxes had to be paid and the family supported, so I was driven to that which it seemed to me I was never fitted for. And, strange as it may appear, I found that I could sell an average of 100 pounds a day in any good farming community, while in villages I could do even better.

First in importance is having good *thoroughly ripened honey*, no matter whether it is clover, basswood, or buckwheat. The latter should sell at about three cents less per pound than the white honey. When ready, take a sample in one of the five-gallon cans, and a half-gallon Dover measure. This measure has a funnel attachment so that as little or as much may be poured out as desired without the dripping or smearing of things generally, as is the case with dippers and such like, generally used for sam-

pling honey. If the honey is granulated it should be liquefied; and if the weather is cold one of the numerous heaters should be taken along so that the honey in the measure can be kept warm enough to pour readily.

There are two ways of finding buyers. The way I used, and the preferable one, where time is not too limited, is, with measure half or two-thirds full, to call at every house—do not skip one; and when the door is opened, say to the one opening it, "I have some very nice honey; and if you will bring me a sauce-dish I should like to leave a little sample of it for a taste for you and the *children*," putting the emphasis on the children, if you see any, for a child's taste for honey is a better advertisement for you than a hundred printed advertisements. When the sauce-dish is brought, pour in till it is two-thirds full, and leave a printed slip, telling that you will be around with honey like the sample in two or three days. Give the price per pound, making the price one cent a pound less where one or more dollars' worth is taken.

The second day, if the weather is favorable, load on your honey-extractor can, filled with honey, and fill all orders, even to as little as one pound; for a small sale often paves the way for a larger one, leading to a steady customer for years to come. It always pays to be accommodating and obliging. Do not annoy people by urging them to buy when they do not want to, and be invariably polite and pleasant, no matter whether they buy or not. In this way friends can be easily made who will be glad to see you come again. Follow the same route each year, and your sales will increase each time, especially if you keep your honey up to the same standard of perfection.

If a wet poor year comes when the honey is not so well ripened, or gets mixed in with other honeys owing to the slowness of the gathering, explain the matter, and put the price accordingly. It is the most satisfactory to let the purchaser furnish the dish, then there is no package to pay for or be returned. However, it is well to have a few filled five-pound pails with you to meet any demand that may be made for such.

The second plan is to take the big can of honey right along with you, and upon entering each house let whoever meets you sample the honey, and then sell at the same call; but if you have the time the former plan will give much the better results.

General Correspondence

NOTES—NOT FOR DISCOUNT

BY ARTHUR C. MILLER

These "Notes" are not an attempt to steal Byer's thunder. These are quite a different kind. These are not for "discount."

Prejudice, the greatest stumblingblock to modern bee culture. Forget it. Better err on the side of trying a lot of fool things than miss one good one because you "know it won't work."

The Chinese keep bees as our grand-daddies did. Excuse me, our grand-daddies kept bees as the Chinese did and do, and doubtless have done for thousands of years, in hollowed-out logs. Sometimes a rough box is used.

No wonder chunk honey is popular where it is not subject to extreme cold. What is more inviting than a piece of comb of virgin whiteness with golden honey dripping from its broken cells? I've just been sampling some, and ought to know how good it is.

Every now and then one or another of the boys is heard to say that he will "risk his reputation" that somebody's pet scheme won't work. Reckless remark that. First thing they know some meddler will look up their reputation, and who knows what they'll find? Ginger!

Stimulative feeding for spring should always be done in the fall. Give them all you think they will need, then double it, and then add half as much again for good measure. Then forget them until late spring. I have given this instruction for many years, but some have not yet learned it.

Funny how difficult it is for some persons to tell whether results *are on account of* or *in spite of* something or other. Half the time the scheme or contraption has nothing whatever to do with the outcome. What have I in mind? I'll not tell you; 'twould hurt too many feelings, and I'm not looking for trouble.

In the *American Bee Journal* for November, T. W. Hall, of Colo, Iowa, is quoted as requeening at the beginning of the harvest and winning by it. Hereabout we do it *before* the harvest, the *fall before*, and also win. It is easier then, and a whole lot cheaper too. Good practice this, having young queens at the head of all colonies. Paste it in your next summer's hat and try it.

If, some bright morning, you find your horse minus tail and mane, lay it to an Ontario chap named Munro. He is recommending it to stop robbing—probably sets the bees to hunting for the tailless horse (and, say—why don't they sting the horse smell on the horse hair? Answer me that, you odorous champions). Most any of the creosote preparations smeared about the entrance will stop robbing at once. Worth remembering.

Buying versus making supplies often agitates the beekeepers, and the answer is an interrogation-mark. Much depends on the man, something on his manner of bee-keeping, and an excuse is given to "location." Not a few of the boys buy some from the supply manufacturers, some from local concerns, and make some. Good scheme, too, and interesting to see how you shift about each year. If you don't shift you have stopped thinking, or have reached perfection—i. e., died.

In the language of Artemus Ward: "They are amoosin little cusses." Who? Why, those Southern New England beekeepers who are talking about the white-clover flow and their crops of that honey. Well, ignorance is bliss, 'tis said, and they are just as happy as if their honey really came from that instead of from half a dozen other sources. If they only knew the sources of their surplus they would soon increase it. Think it over from now till the next harvest, then *look*; but have a care where you look.

If Hand and Bonney want to get mighty stuck up in their way of producing comb honey, I don't care, and probably they don't care either about anybody's opinions. "Stuck-up people" don't. We hereabouts think it *cheaper* to let the bees put the honey in the sections from the start. We get ideal filling too. How! Oh, pshaw! What's the use of my telling you? We New Englanders are not considered in it for raising honey. But you notice we stay right here and don't keep moving apiaries, as they do in Ontario and Ohio and several elsewhere.

In November 15th GLEANINGS Louis Scholl has a fine vat for melting candied honey in cans. (Note.—Not a pun.) I had a glimmering recollection that honey was slow to cut that caper in his vicinity.

Chunks of the 60-gallon size evidently are too big. There is a scheme used by some which beats that plan. Put the cans on their side slightly sloping toward the outlet (formerly the inlet), apply gentle heat under cans, and as fast as the honey melts it runs out into a large tank, stirring itself on the way. Great scheme, and rapid. O Pscholl!

If one should judge from the seemingly fiendish glee with which people write and editors publish all sorts of makeshifts, one might be pardoned for believing them the virtuous and better way of beekeeping. Cut out all such. Throw away, burn up, destroy, annihilate, all misfit and obsolete material. It is the poorest sort of economy to use it. It gives one a pain—yes, severally—to see the worse than poor planning and management of some beekeepers. And the amount of non-productive labor they do is—well, it makes one too weary to think of words to describe it. No wonder such people groan and kick at the preaching of “keep more bees.” Poor souls, they have all they can do to keep what they have.

Not that I would cast any reflections on H. H. Root's groove-and-wedge method of putting foundation into brood-frames, but 'tis horribly slow, and wastes foundation at the rate of one sheet in about thirty. At 50 cents per pound, and only 7 or 8 sheets per

pound, it counts up in a few hundred pounds. Down in this corner of the country several of us do it faster than that, waste no foundation, use a grade running 11 to 12 sheets to the pound, and get perfect combs. But then, we don't sell foundation. We buy it of the Roots and others, pay them more than 50 cents for it, and save money at that. But this is another story. I'll tell it to you some day—if you will promise to listen and try it before you comment on it.

Wesley Foster, the professional Colorado wanderer, says that one Nichols, of that part of the continental roof, “has demonstrated that a beekeeper can successfully rear good queens by the most approved methods and produce a crop at the same time.” Now, Wesley, please tell us how many queens, and the cost per queen, and how many colonies it took for queens, and how many for crop. But, better still, just run down here and we will show you how to have *one* colony raise *four hundred* queens in one season, magnificent ones too, and have that same colony a rousing one at the end of the season; and when we want to put a few thrills into the Western amateurs, we produce a crop on that same colony at the same time. And by the way, Wesley, the “most approved” methods are not always the “most effective.”

NOTES FROM GERMANY

BY J. A. HEBERLE

In Germany we have no comb-honey canard, but we have something much worse. We have artificial honey and cheap foreign honey from Central and South America. Although we have a duty of \$9.60 for 220 lbs., the beekeepers complain of this competition as unfair. Of course this blame is on the home merchant, not the foreign beekeepers.

This imported honey, so it is said, is in a very unclean condition. It could not be sold as it is imported, because nobody would buy such nasty-looking stuff, even if the law would permit. The importers heat it up, clean it thoroughly, and sell it as “warranted pure honey.” The beekeepers say that the origin of all honey sold should be declared, so that the consumers may know what they are getting. This foreign honey costs probably about 3 cts. per pound at the door of the beekeeper, and even less. The price for good honey in Germany is high, because the bee-pastures (and the weather) are very poor compared with those of America. In some districts (counties) 10

to 12 lbs. is the average per colony in a normal season. In poor seasons many beekeepers do not get any surplus; 25 to 30 lbs. is in many districts considered a very good crop. Real good crops we have in some seasons in districts of the Black Forest and the “Vogesen.” At the base of the needles of a fir-tree a sweet juice exudes. It is not honey-dew nor from the plant-louse. The bees gather some years a great deal of this black honey, which has a peculiar sweet taste reminding one of the forest; but it lacks the fine odor and taste characteristic of honey from the nectar of flowers. A good many people like it, and consider it especially salubrious.

An immense quantity of artificial and adulterated honey is sold. Often an inferior syrup is mixed with some of the cheap foreign honey. It is usually sold under a fancy name that has the word honey in its combination. Manufacturers and retailers gain heavily, so that, if now and then one is fined a few dollars he does not mind that. We have a law, but the meshes are too wide,

and most crooks get through without being caught.

The beekeepers of Germany could easily have the present laws so amended that the origin of the honey would have to be declared, and so that all artificial products and mixtures would have to be sold as such—not being allowed the use of the word "honey" in any combination.

Beekeepers here have still another wish. They want a law enacted by the national parliament so that it may be uniform—the same in the whole empire—about foul brood and other diseases of the bees. The general government and the parliament would readily accede to these demands, notwithstanding the opposition of the manufacturers of artificial honey and the importers and vendors of cheap foreign honey. Years ago this honey was used exclusively by the confectioners.

The beekeepers should be united in one powerful federation. "There is the rub." Conferences with that end in view were held, and it was generally believed that the right formula was found. The statutes had been accepted. It was agreed to complete the Union in July last at Berlin. But there is "many a slip 'twixt cup and lip." The president of the largest organization, at the last moment, at Berlin, ignored the agreement—the formula he had helped to make. Now the union is further off than ever. We have two large unions, each with 70,000 members, and some smaller ones; but we have not what we should have. It seems that some, a little top-heavy from the importance they have in their own estimation, are to blame for the failure at Berlin. Now some with a talent for demagogery are trying to draw a Mason-Dixon line. I suppose the beekeepers will have or get the organization they deserve.

DO BEES CARRY EGGS FROM ONE COMB TO ANOTHER?

The *Schweizerische Bienenzeitung* brings a short article that answers this question in the affirmative. Mr. Gassman writes that he wanted to get a series of queen-cells from "Esther." For that purpose he dequeened a strong colony eight days before. On the 19th of May he wanted to get the eggs from "E;" but this colony had swarmed, and the swarm had eggs in one comb. This comb was taken and given to the colony that was to rear the queen-cells. Before the comb from E was given to this nursing colony all the queen-cells (19) were destroyed. Seven days later this nursing colony was examined. On a comb this side of the one from E, on the upper periphery of the brood circle, there was a capped queen-cell on each side

of the comb. The contents of both cells were white queen pupas. On the comb from E there were 18 capped queen-cells. Mr. G is sure not to have overlooked the cells on the 19th of May; but if he had, the queens would have emerged, or the cells would at least have been ripe. He concludes that the eggs from the comb given were carried to the adjacent comb. The one comb given seemed not sufficient for the colony.

Another theory would be that the colony had preserved the eggs from the original queen. It has been reported that bees do sometimes preserve eggs. It is a fact that fresh bee eggs can be preserved several days under proper conditions without losing the quality of hatching.

A NEW METHOD TO DETECT ADULTERATED HONEY.

Dr. Armani and Dr. Barbuni have discovered a reaction whereby adulterated honey may be easily detected. Two grains of the honey are put in a porcelain dish and dissolved with 10 c. c. of distilled water. The solution is transferred to a test-tube, and 1 c. c. of a solution of benzin saturated with glacial acetic acid is added. Adulterated honey will color the solution a yellowish red, while pure honey will not change the color. The color reaction takes place immediately, and the intensity will be in proportion to the quantity of the artificial product in the sample examined. This test is very easy to make, and does not take much time. It can hardly be expected to detect every adulteration. It will answer, probably, for only one artificial product; but the wholesale adulterators have able chemists in their employ, and most likely find a way so the reaction won't work. Chemists have to-day no method of analysis by which an adulteration may in all cases be proven. The natural honey differs so much according to the source of nectar that proving adulteration by analysis is not a success. It would be easier, for instance, to prove that a certain sample is not alfalfa or white-clover honey, because either of these honeys will show very little variation, no matter where it is from; but here we have mostly honey derived from five, ten, and more different flowers, and these flowers furnish nectars in various proportions; so if we take one ingredient that can be determined quantitatively we must allow a large limit as minimum and maximum before we can say this honey is adulterated. Manufacturers know this and act accordingly.

BEES MOVED 1½ MILES TO BASSWOOD.

Mr. Freudenstein, in his *Neuen Bienenzeitung*, writes that he moved his bees this summer 1½ miles to get the benefit of the



Among the big pines in Bluejay Canyon. Photographed by P. C. CHADWICK.

basswood-honey flow. Not one bee flew back to the old stand. That is quite different from the orthodox teaching, and what our

books say about changing or moving bees during the summer.

Markt Oberdorf, Bavaria, Germany.

BEE-LIFE IN THE SAN BERNARDINO MOUNTAINS

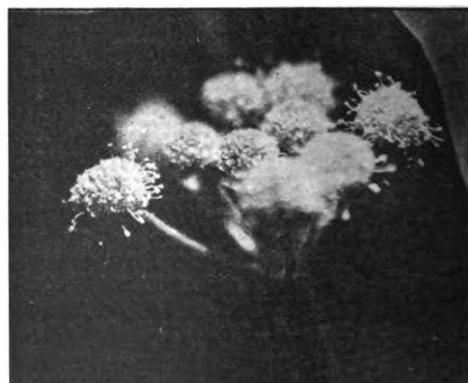
BY P. C. CHADWICK

I have lived in the foot-hill region of the San Bernardino Mountains for ten years, and have penetrated them for some distance in the canyons and lower levels; but my desire to reach the higher elevations and study the flora, and ascertain to what elevation bee-life could be found, was not gratified until August of last year.

I planned my trip with the object of reaching the limit of vegetation, and to that end decided to start for the top of Mt. San Gorgonio (old Grayback), which is the highest point in the southern part of the State, reaching an elevation of 11,485 feet. The summit is reached only by narrow trails, and they are rather dim in many places, making a guide necessary. In this respect I was fortunate in that my oldest son had made three trips to the summit, and was thoroughly acquainted with the trails, though he is but fifteen years of age. He made a fine companion, and gave me much pleasure by describing the various streams, peaks, and historic spots.

The elevation at my home in Redlands is 1400 feet. Forest Home, a mountain resort, and the end of our first day's journey, is 17 miles distant, with an elevation of 5000 feet.

This, the first lap of our journey, was made by automobile with a friend, our tent and camp equipment coming by auto stage a few hours later. Our tent was pitched and permanent camp established at this point, which is 16 miles from the summit of old Grayback, but is the highest point to which roads are made. Aside from making a short



This flower is known as cow cabbage, and is found in the higher parts of the San Bernardino Range. Bees work it freely for nectar. Photographed by P. C. Chadwick.

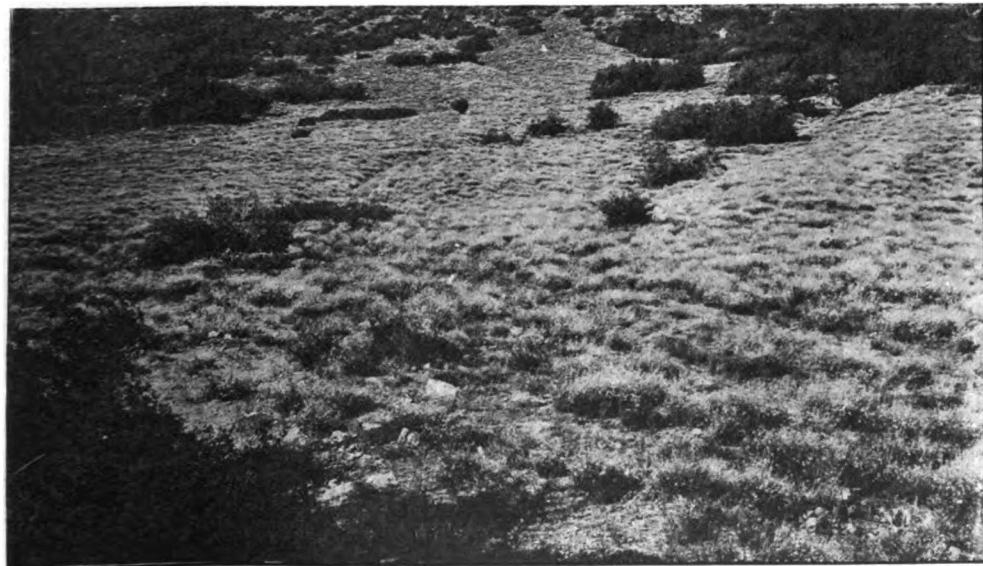


The lighter-colored shrubbery in the foreground is mountain lilac, and the darker, the scrubby mountain mesquite. *Photographed by P. C. CHADWICK.*

trip with Wallace (my son) early the next morning, the day was spent in making camp comfortable for my daughter Ruth and her friend who were to keep camp alone while we went into the higher altitudes. Here I wish to say a word about the automobile in the mountains. It is wonderful what a load the auto truck running to this point is able to climb the grades with; and the machines that reach this resort over mountain roads are many indeed. However,

of all machines that get there the little Ford is about the first and most sure, and I believe that, for light roustabout work for an apiary over any kind of roads the average beekeeper has to travel over, it is about the best and most sure of any, regardless of the price.

The second day we started out early for a trip to Dobbs Cabin by way of the Dobbs trail. This we reached after six miles of steady climbing which brought us to the big



A field of wild buckwheat containing over 40 acres on the mountain-side near Forest Home. Elevation 5500 feet. *Photographed by P. C. CHADWICK.*

pine forests. There was wild buckwheat to be seen in the canyon, from the time we entered, eight miles below Forest Home, as well as wild clematis, which was abundant, and alive with bees. These two comprised the chief flora of the region around Forest Home and for some three miles up the canyon above this point. But here we began to find traces of white sage. Though it was nearly out, there were bees busy trying to gather what nectar it contained. I might add here that there was no great amount of white sage anywhere in this canyon, nor on the mountain-sides adjoining. After travelling up the canyon three miles we began the ascent of the steep trail toward the summit, traveling slowly and making careful study of all honey-bearing plants. We saw white sage and wild buckwheat up to an elevation of nearly 7000 feet, but no higher. The entire mountain side was covered with wild lilac, mountain mesquite, and amanzanita, but the blooming period of all these had passed at the highest elevation we reached on this day's travel, about 7500 feet. The



A giant sugar pine. No lumber grows that is better suited for hives. The clear lumber in this tree would retail in Redlands for \$150 per thousand. Photographed by P. C. Chadwick.



P. C. Chadwick watching a bee working on a cow cabbage at an elevation of 9000 ft. The peak in the distance is a part of the summit of the San Bernardino Range.

abundance of bee life found was a great surprise to me, for every flower of which there were a few of many varieties contained bees. At 7500 feet I found the watering, and coursed them on up the canyon among the giant pines, firs, and redwood. It is not generally known that there are redwood trees in these mountains; but we found one that was almost 15 feet through at this great elevation.

The day was more than half gone, so we returned to camp satisfied with what we had accomplished.

We had found no lack of bee life to the limit of altitude reached; had found out about what level the white sage and wild buckwheat could be found; secured some fine pictures, had photographed a field of buckwheat on the side of this mountain that contained more than 40 acres, as well as being able to find one bee-tree and many sources that we did not take the time to follow up.

The following day we were up and early, for we had decided to go to the Li-

of vegetation which required a walk of nearly thirty miles for the day. This time we continued further up the canyon and took the Vivian trail to Vivian Canyon, and then on over toward the summit. The elevation of honey-plants was found about as we had found them the day before, up to 8000 feet; but at this point the mountain mesquite was blooming profusely, and was literally alive with bees. But by the time we reached an elevation of 9000 feet the bloom had not yet come out; but the bees were working on what is known as the cow-cabbage and a few small flowering plants. We had almost reached the limit of vegetation, there being no trees but the lumber pines, some amanzanita brush of low scrubby growth, wild lilac and mountain mesquite not yet blooming. Vegetation was so thin, and flowers so scarce, that we decided it would be useless to continue the search,

though I returned fully convinced that it was probable that bees often flew over the barren peak of old Grayback, and that the flowers that bloom on this peak at times are visited by the bee for its store of honey.

As Uncle Sam zealously guards the giant trees and all growth in this a national forest reserve, the little bee will doubtless occupy this vast stretch of mountain fastness undisturbed for many years to come. The giant pines of the mountain sides, coves, and canyon will remain in their natural state to help protect and retain the vast amount of winter rain and snow that finds its way into the soil, to come again from the springs that feed the mountain streams, finding its way to the valleys to water the orange-groves and other farm products that help to make life in the great semi-arid region of Southern California.

Redlands, Cal.

DO NOT MINIMIZE THE DANGERS OF AMERICAN FOUL BROOD

BY A. F. WAGNER

Of late, when speaking and writing of bee diseases, European foul brood seems to be uppermost in the thoughts and writings of most beemen. Is there not a possibility that, in our zeal to prevent its importation, and eradicating it when found, the danger of American foul brood is minimized? A word of warning at this time may not be amiss.

American foul brood still exists in perhaps all of the counties of Southern California. At a recent meeting of the Board of Supervisors the chairman said that, if he was not mistaken, beemen are not afraid of this disease, European foul brood being the most feared. When asked if I felt the same about it I answered that I surely dreaded American foul brood, and so would any one else who had ever had any experience with it. The beeman who thinks he has a light job on his hands to eradicate American foul brood will find out his mistake before he gets through.

A description of this disease in this article will hardly be necessary, as a description of it can be found in any book on bee culture, so that any intelligent person can readily detect it. But I should like to write a few words as to how it may spread and become a menace to an entire neighborhood.

It is often caused by swarms, either natural or absconding, from affected colonies. The danger is most in the latter. To guard against this, never hive a swarm into a hive containing drawn combs, nor unite a swarm with weak colonies. I know this to be a

practice with many beemen. Don't count too much on those stray swarms that happen to come to you. Let me give you an illustration: On inspecting a certain yard I found several affected colonies, and the regular treatment was prescribed. On a trip to this yard later I asked the owner how he had succeeded. The answer was, "Oh! all right, what are left. Some of them absconded." (I want you to notice they absconded. Where to?) I had tried to get this party to use my mode of treatment, but he took what he thought a quicker mode. Those absconding bees perhaps went to a yard in the neighborhood, and perhaps were hived directly into a hive containing drawn combs, and you know the result. Later another case of foul brood, another shaking, another absconding swarm, etc. To be on the safe side, always hive stray swarms on *starters*.

"But," you say, "how can I prevent absconding and get rid of the disease?" In answer I will describe a treatment I used some ten or eleven years ago.

After trying the shaking plan one day, and finding one-third of the number so treated clinging to brush the next morning, and some gone entirely I marked every colony that needed treatment, and worked every thing down to the brood-chamber by extracting the honey and melting the combs into wax. Next I took one comb out of the center of the brood-nest and put in its place a frame containing about two inches of comb foundation which we will term a

starter. In two days I removed every thing except this starter which had by this time been drawn out, and perhaps contained some honey. I placed this starter to one side of the hive and filled in with full sheets of comb foundation. Every thing that was removed was taken care of by extracting the honey from the combs and then melting the combs into wax. One or two days later I removed the starter, and in some instances the comb next to it also. By this treatment 95 per cent and over were cured, and there was no absconding.

Some say, "Why not cage the queen to prevent absconding?" I will say that I have had them abscond and leave the queen. And, more than that, the bees were so confused or excited that they would swarm out and form into two or three different clusters, and either try to enter, or actually enter, other hives in the apiary.

Others say that we are bound to have the disease as long as the trees contain wild bees, or some farmers have only one or two neglected colonies. To the first I will reply that I have yet to meet the first man who ever mentioned that he had found foul brood in a bee-tree. I do not say it isn't there; but did you ever see a bee-tree being robbed out by other bees? In case they get foul brood and die, the moths are generally there before any thing else. The danger

from this source is not great. From the other source, of course, the danger is greater, but not generally as great as imagined, as bees that are not much disturbed are hardly ever robbed by other bees; and should they die by becoming queenless or by disease, the moths soon have every thing.

Another means of spreading this disease is when the honey from diseased colonies is sold to retail trade and the empty cans are thrown where bees can clean out the contents. It would be a good plan to make a law making it compulsory for each to mark or stamp each can, stating that the honey was taken from bees containing foul brood. I believe this last, if it could be enacted, would rid the country of foul brood quicker than any thing else.

El Centro, Cal.

[We agree with nearly all that our correspondent says, except that we believe it would be impossible to get a law passed compelling a producer to mark all honey from foul-broody apiaries, for honey so marked would be almost unsalable. The average consumer, knowing nothing of the nature of the disease, would consider honey from a hive containing *foul brood* unfit for table use.

As to whether swarms may carry foul brood, see editorial.—Ed.]

FROM NORTHERN OHIO TO NORTHERN FLORIDA

BY J. E. MARCHANT

This venture was undertaken by The A. I. Root Co. in order to determine the advisability of shipping a carload of bees from Ohio to Florida, a distance of fifteen hundred miles, with the prospect of making an increase of 100 per cent, and perhaps a fair crop of honey.

Six days prior to the time this shipment was made, a severe blizzard raged in that section of Ohio, covering the ground with about two feet of snow, making it necessary to dig the hives from under the snow. The railroad being blocked by snow it necessitated a delay of five days before shipment. For shipment we used a ventilated refrigerator car. The bees were loaded in the car with the frames running the same way as the car, with three rows on one side and two on the opposite, with a narrow passageway between, and four tiers deep. They were kept in place by means of a framework of 1 x 8 boards reinforced by a railing, and a stanchion of 2 x 4's, which, with the thickness of the cleats on the bottom-board, and the thickness of the screen on

top, left a space of eight inches between every two tiers, this making it possible to water every hive in the car. The hive-covers were stored in any place where it was possible, in order to economize room.

My sleeping accommodation consisted of a cot, which I was unable to use, placed in the alleyway. Dining-car accommodation not being available, it left me many a time with a hungry stomach. Upon leaving Medina, I took a supply of eatables which lasted me till I got to Nashville, Tenn. There I walked the length of the train, some sixty cars, and half a mile beyond, and had the pleasure of paying twenty cents apiece for some small railroad sandwiches. During this trip a few breakdowns occurred, which necessitated sawing occasionally some boards and driving nails. The motion of a fast freight made this operation somewhat disagreeable, as it made it as easy to hit the thumb as the nail.

Soon after leaving Birmingham, Ala., a portion of the staging broke, compelling me to stop over at Montgomery for repairs.

This necessitated the removal of 135 colonies. In making repairs and reloading, fifteen hours were lost. From Montgomery to Bainbridge, Ga., a little water was used—possibly twelve or fifteen gallons. Upon arrival at Bainbridge the bees were taken from the car and placed on the steamboat dock. From the time of unloading to the departure of the steamer, thirty hours elapsed. The shortness of time and nearness to destination prevented me from giving them a flight. To keep the bees quiet during this interval a very large amount of water was used. Four hours were consumed in loading the bees upon the steamer; the weather being very warm, and the bees being piled upon the open deck, necessitated an almost continuous supply of water.

The trip from Bainbridge to Randlett's Landing, Fla., took twenty-four hours. Upon arrival at Randlett's Landing I had a

crew of five men in readiness. The boat's crew carried the hives ashore, and my men placed them upon their stands. The bees were then released and given a flight after thirteen days of confinement. Upon examination next day I found three colonies dead, making a loss of one per cent. Accompanying these bees there was a carload of supplies. During the past six weeks I have been very busy in nailing frames, assembling hives, and painting them. In regard to stimulating, I now have 200 Boardman feeders in use.

To-day, Jan. 8, I saw a few drones flying, and the bees are gathering an abundance of pollen. Examination shows brood in all stages in advance of the season.

In conclusion I would say that, if any beekeeper thinks this trip was all pleasure, I extend him a cordial invitation to accompany me on my return trip.

BEES WORK MORE READILY ON BROOD FOUNDATION THAN ON THIN SUPER, EITHER IN THE BROOD-FRAMES OR SUPER

BY GEORGE T. WHITTEN

Last spring, when fitting up one of my observatory hives, I was short of medium brood foundation to fill two frames. I filled three of the center frames with half medium brood and half thin section foundation—that is, a strip of each covering half the width of the frames. As the strips of section foundation were about two inches too short to fill the space, they were placed down within half an inch of the bottom of the frame, and a piece of brood foundation filled in the space at the top. The three frames were placed in the center of the hive. The bees were put into the hive, and at once began to draw out the brood foundation, leaving the thin section. They continued drawing out and filling it with brood and honey until the outside frames were nearly filled.

When I found they would not work on the thin foundation if there was any thing else, I took the frames out, melted some wax, and painted them with a thin coat; but they still refused to work on them. I then cut these portions out and put in medium brood foundation. The bees then went to work on them, drew them out, and filled them the same as the others. They would draw the brood foundation out, and fill and cap it, up to the very last cell where the two came together.

I observed that, while they were working on the foundation early in the season, when there was not much honey coming in, they worked the foundation out very thin; but as

the flow increases they do not work it out much but build on to it.

This experience led me to think that one reason bees hesitate to work in sections is the thin foundation used in them.

I filled some sections with a strip of medium brood foundation $\frac{3}{8}$ of an inch wide, all the way around the edges, and some with thin super, full sheets, and placed them alternately in an observatory super, and I found that the bees worked on the brood foundation first in every case, and filled the sections out to the edges well.

I intend to give this a more thorough trial this coming season. Whether this has any effect on the swarming problem I do not know, for I have not had a natural swarm in four years, and only three in seven years.

Hartford, Ct.

Your experience is quite in line with that of others. There can be no question but that bees prefer brood to thin super foundation. This preference is so marked that some large producers have been using brood foundation in their sections in place of thin super. The bees will enter supers with heavier foundation much more readily than supers with ordinary thin.

This may and probably does have bearing on the swarming question. The principal reason why thin super should be used—and that may be an important one—is that it leaves less midrib in the comb honey; but

during the past summer we tried light brood foundation in several of our section supers. After the sections were filled and capped over we asked Dr. Phillips, of the Bureau of Entomology, Washington, D. C., who took dinner with us, to try them. He, like the rest of us, was frank to say that he could detect no appreciable "gob" or midrib. In fact, if we had said nothing about the brood foundation in the first place he would have thought nothing about it except that it was very fine honey, equal to the very best in every respect.

We are coming to believe that perhaps we beekeepers have magnified the evil of using brood foundation in sections. The fact is, we doubt very much whether the average connoisseur can detect the difference be-

tween a nice section of comb honey built from brood foundation, and a comb built from ordinary thin super.

There is another factor to be considered —namely, that brood foundation will cost more per square foot than thin super; but the relative difference is not great. If by using the heavier grade swarming can be reduced, and if the bees will enter the section supers a day or two earlier, we may well afford to pay more.

Mr. Whitten's observation, that bees will thin down foundation more when they have time, is in line with experiments by the late Mr. E. B. Weed some fifteen years ago.

This is an interesting question, and we shall be glad to hear from others who have any thing to offer on the subject.—Ed.]

PROVIDING WATER FOR BEES AND QUEENS SENT BY MAIL

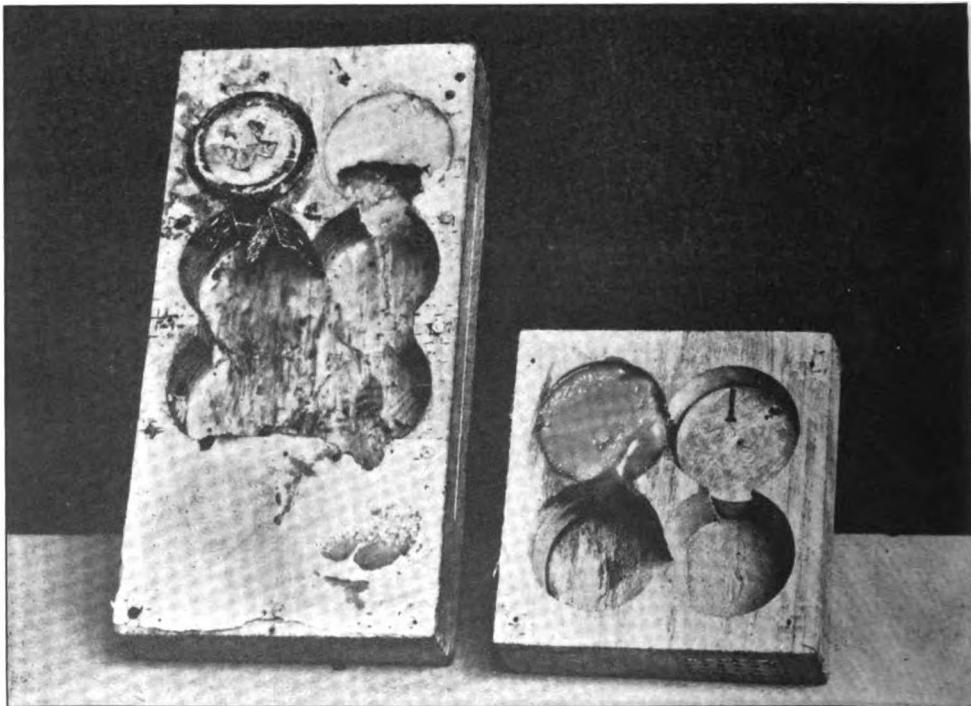
BY L. J. DUNN

There is always a loss by shipping queens and bees by mail without water, especially export shipments. With a punctured water-can, as in the one and two pound packages, the cages are in all kinds of positions in the mail-sacks, and the opening may be above the water at times, leaving the bees without

water. By inserting a piece of cloth for a wick, as I have done, the water siphons out, no matter what position the cage is in. The plan has proven satisfactory with me on long shipments.

San Jose, Cal.

[We have had no opportunity of trying



Mailing-cages with water-cans to provide moisture for the bees en route.

a wick in the can of water used in the mailing-cages, but we see no reason why it should not work. In the accompanying illustration the larger cage has Mr. Dunn's water-can in the upper left-hand compartment, the wick being indistinctly shown in the side. We tried on quite a large scale a similar can shown in the upper right-hand compartment of the smaller cage. We used

a very thin can or box containing hardly an eighth of water. By this plan the bees can reach the water through the perforation as long as there is any left, unless the cage stands on edge when the water is nearly gone. The use of the wick ought to give better results, provided it can be adjusted in such a manner as not to waste the water.
—Ed.]

A NEW WAY TO MAKE CANDY FOR COLD-WEATHER FEEDING

BY A. V. SMALL

Under separate cover I am sending a sample of winter candy made by a process that I consider easier and safer (less danger of burning) than the cooking-down method.

The process is simply to pour into a box of dry sugar enough thick syrup, *boiling hot*, to make a mixture about the consistency of mortar. In a few hours this will cool into a solid granular cake, and then it is ready for the bees.

By experimenting I find that this candy can be made as dry as ten pounds of sugar to one of water, and it can be made as moist as seven pounds of sugar to one of water. I consider the proportion of eight to one about right. To each pound of water add an ounce or more of honey. This gives the candy a food flavor; and as the bees eat it they smack their lips and say, "It's just like mother used to make." And I don't think the candy has the flinty hardness when a little honey is used.

A convenient way of forming the cakes is as follows: Put a partition in a super and fold a piece of heavy wrapping-paper so that it will just fit in one of these spaces like a paper box. Into this put your dry sugar. If you want a cake that contains nine pounds of sugar, put six pounds in the box. You will get the other three pounds of sugar when you add your thick boiling-hot syrup.

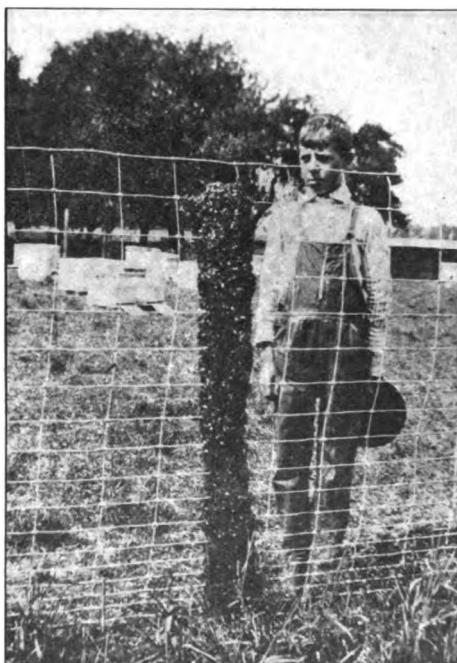
Pour in enough syrup so the sugar can be worked like mortar. Let it set until cold, when you can lift it out, paper and all. Trim the paper down to within half an inch of the surface of the candy. Place this, candy side down, on top of the frames, supported by little blocks. Now put on your packing, and with a good water-tight hive-cover your bees are ready for winter.

There are a good many advantages about feeding candy, particularly for out-apiaries. From the trend of beekeeping to-day we may expect some of these to be brought before the public in the next few years.

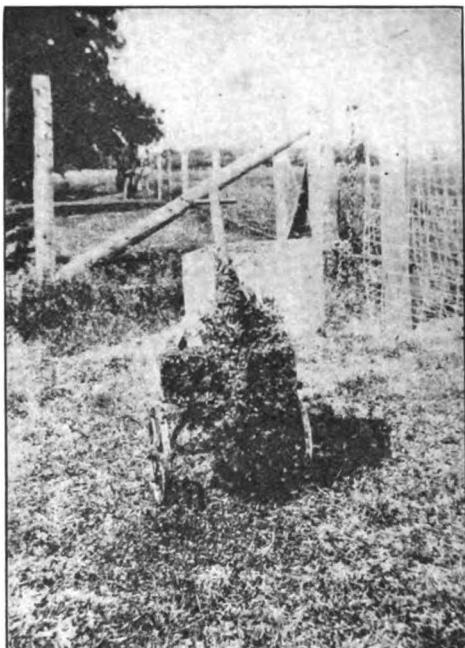
ARTIFICIAL POLLEN.

On page 864, December 1, Mr. B. W. Brown asks for an artificial substitute for pollen to be fed inside the hive. During bad weather in the spring I have fed graham flour, honey, and a little powdered sugar, mixed to the consistency of stiff dough. This was packed in paper tubes, $\frac{3}{4}$ inch in diameter by ten long. The tubes were closed at one end; and the bees, having access to such a small surface of the dough, ate their way through the tube slowly.

These tubes were placed on top of the brood-frames, two tubes in a hive. They were not used until after natural pollen had appeared, and then they were given to the



One of W. L. Cheney's swarms that clustered conveniently on a wire fence.



A swarm large enough to fill a wagon-bed!



Mr. Cheney, Jr., ready for work.

bees only during stormy periods. The bees seemed to relish the mixture, and I attribute the steady laying of my queens during stormy weather to the feeding of this artificial pollen.

St. Joseph, Mo.

[We have examined a sample of the candy sent us by our correspondent. It resembles moist loaf sugar, although it is somewhat softer. We should think it might crumble enough to cause some waste by particles dropping down between the combs, but perhaps not. It is simpler to make than the hard candy described in the Jan. 1st issue.

Later.—The following came to hand after the foregoing was written.—ED.]

Your letter of Jan. 20 is at hand. I have just looked at fifteen hives having the candy slabs over the frames. There has been some

crumbling, as you suggest. The slabs with the greatest amount of water crumbled most; but the slabs with the least amount of water crumbled no more than the hard boiled-down candy which I have used heretofore.

I find that, if the syrup is made too thick, it will "wet up" only a small amount of dry sugar, resulting in a slab of candy with *too much water*. I find that syrup made two of sugar to one of water will wet up a large amount of dry sugar; and by using only enough to moisten the sugar nicely we get a very hard slab which crumbles but little as the bees work it.

I have made some slabs in paper boxes about the size of a cigar-box. These were placed two in a hive, candy side up. The bees come up between the two slabs, and work the candy from the top. This is very satisfactory.

SOME SWARMS THAT DID NOT CLUSTER UP IN HIGH TREES

BY W. L. CHENEY

I have been reading the Aug. 1st issue in regard to shinning up trees for swarms. The pictures show how obliging some of my swarms were.

I have 70 colonies, all in ten-frame hives. I am running for both comb and extracted

honey. We have a fine white-clover flow. I feel like telling every one to use the steam uncapping-knife. I would not go back to the old hot-water knife unless compelled to do so.

Mason, Mich., Aug. 4.

A PLEA FOR FARM BEEKEEPING

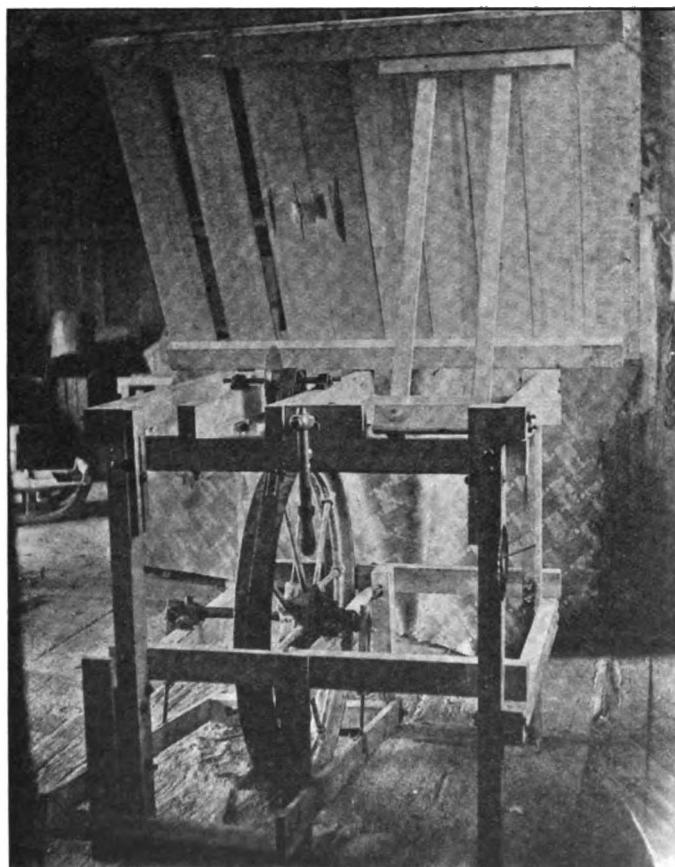
BY A. J. JAMES.

Beekeeping is essentially a rural pursuit, and it is but natural that bees should be found on farms. Bees and farms have been associated in the popular mind from time immemorial, yet, as a rule, the farmers have not done a great deal toward the development of apiculture. This work has been done largely by specialists who have devoted their lives to it. The farmers usually have so many other interests that it is not to be expected that they would become very extensive beekeepers. However, there is no good reason why every farm should not have a few colonies, at least, if only for the sake of providing the family table with one of the most wholesome and delicious sweets known.

The farm is the ideal location for an apiary. There the bees can be in close proximity to the nectar-bearing blossoms, and they will also perform an almost invaluable service by the fertilization of the plants they visit. The most extensive beekeepers have their apiaries in the country frequently on the farm of some one who, for a nominal consideration, lets another man's bees gather the honey which he could just as well have for his own. If the farmer himself has not the time to devote to the bees, it would be well to get the boys interested. It is a well-known fact that when the farmer boys have a few acres of ground to work for themselves they are not so anxious to go to the cities, and this idea would work out nicely with the bees by giving them a few hives for their own. Let them learn how to handle them, and reward their efforts by buying their honey for the table. They could thus earn their spending money. Frequently the

women folks take care of the bees, and women do make excellent beekeepers. They can do all the work needed, except, perhaps, the handling of heavy hives and supers, and some of the men can usually be pressed into service for that. Bees make a fine combination with poultry-raising, and have made lots of pin money for the women.

Occasionally some writer holds forth with a glowing account of the large profits some one has made in the production of honey. It is true that quite frequently large profits are made, but usually by those who are experts in the business. The production of honey is not a get-rich-quick game, and there are ups and downs in that line of work as well as in any other. However, the farmer beekeeper with a few colonies will usually make enough honey for his own use



Foot-power saw made by N. H. Wilson, Derby, Vt. It is made of 2 x 8-inch maple, and the legs are 39 inches high. The top is 2 ft. wide and 8 long. The pieces are bolted together with $\frac{3}{8}$ -inch bolts.

with perhaps some to sell in almost any year, and when the extra good seasons come he will profit accordingly. One item to be considered is the increase in the number of colonies. In an ordinary year each strong colony will usually produce a swarm, or it can be divided, thus making an extra colony, which, in a good hive, will soon be worth from five to eight dollars.

Decide now that you will keep a few colonies at least. If you have had no previous experience, do not start on too big a scale, but let the increase of your bees and your knowledge of them go hand in hand. Many a promising beekeeper has made a failure by yielding to the temptation to purchase a good-sized apiary at a bargain when he knew little or nothing about the management of it. Five or six colonies will usually be sufficient to begin with, and after

experience is acquired, more bees can be purchased if the original stock does not increase fast enough.

Above all things, use only good, factory-made hives of a standard size and style. A miscellaneous lot of hives is considerable of a nuisance in an apiary. Uniform hives will be interchangeable, which is a great advantage, as it frequently becomes necessary to move them from one bottom-board to another, or to shift supers from one hive to another. There is no economy in making your own hives unless you are skilled in the use of tools, and can get lumber cheaply, and even then it will be better to buy the fixtures required for the inside of the hives, as they are made by machinery, and can be produced in a factory more cheaply than by hand.

San Antonio, Texas.

HELPS AND HINDRANCES IN DEALING WITH FOUL BROOD

BY J. W. STINE

Read before the Iowa State Beekeepers' Association at Des Moines, Iowa, December 11 and 12.

From the standpoint of a foul-brood inspector I will try to line up briefly the helps on one side in dealing with disease, and the hindrances on the other, and to come to some practical conclusion as to the situation in southeastern Iowa the past season. The Bible says, "No man liveth to himself, and no man dieth to himself." This is as true in beekeeping as in any other line of work. We are either a help or a hindrance to one another. This leads me to say that I believe the beekeeper himself can be either the greatest help or the greatest hindrance pertaining to the foul-brood situation. I quite agree with Mr. Pellett in what he says in his article, page 856, Dec. 1.

It is surprising how many we find who know little about the inside of a hive, and nothing at all of bee diseases. Then there is the man who thinks he knows all there is to be known about bees and is not willing to learn. He is the hardest to convince. One man whose bees we inspected last summer said he had known about foul brood for 25 or 30 years. But he let three colonies die that we had marked diseased, failing to treat them as we had requested. We had to take extreme measures, much as we were loath to do so, and burn one weak colony that we knew would not winter, before he would believe we meant to carry out the letter of the law. This is the most extreme case we have found, and as a rule we find the beekeepers ready to get all the information and help they can.

We recall one other instance when we did not see the owner, but the boys tried to pilot us around through the blackberry bushes and underbrush in the back yard and show us the bees. The boys watched at a safe distance, saying those were the crossest and blackest bees in nine counties. I proceeded to give the bees a good smoking; and the poor things, so unaccustomed to such a thing as being handled at all, scurried up among the combs in the old box, glad to find a place of refuge in the furthest corner. I lifted the box from its bottom-board and found it had been placed on top of bees and evergreen brush, and the poor little fellows had to make their way through that brush all summer to gain the inside of their home. I gladly removed the brush, and placed the box back on the bottom-board, and not one of those little blacks offered any resistance—but such a way to keep bees! It is just keeping them—it isn't caring for them. No frame hive was in the whole bunch, and the only way I could get a peep at the brood was to tip the boxes up or break piece of comb out of the hive to examine it. It is nearly impossible to do even this in some cases, as the hives or boxes are nailed to bottoms, and some are so badly decayed that it is nearly impossible to handle. Then we find in this case, as in many others, the man, the bees, and the hives are the greatest hindrances.

One of the greatest helps we have found is good foul-brood and quarantine law.

backed up by a loyal fraternity of beekeepers and friends. While the laws of the different States may differ somewhat, they are essentially the same so far as I have been able to ascertain. I believe Iowa has as good a foul-brood law as any State, and what we need most is a larger appropriation of money from the State to carry the law into effect in a general and educational way.

Two other great helps should be mentioned, and these are the bees and the hives in which they live. Mr. W. D. Wright, of Altamont, New York, has the following to say in an address on the subject: "The Italian Bee as a Factor in the Extermination of European Foul-brood," delivered at the New England N. S. and Canada bee-inspectors' convention at Amherst, Mass.,

Feb. 7, 1912. He said he always advised introducing the Italian bee wherever he inspected bees. At first the New York beekeepers were slow in using this method; but after using it a while they became very enthusiastic over the Italians. Some of the men used the dequeening method with Italians this year with good success. For several reasons I believe the Italians are better in fighting American foul brood. In regard to the hives, I will say I much prefer the ten-frame Langstroth hive to any other kind; but the main thing is to have the bees in movable-frame hives.

We have mentioned that the beekeeper is the greatest help, and I believe it is equally true that the beekeeper may also be the greatest hindrance.

EARLY SPRING FEEDING ADVISABLE ONLY TO PREVENT STARVATION

BY J. L. BYER

During the last three months of the year 1913 I received more letters asking for information along certain lines in beekeeping than I have ever received in any six months previous. Briefly the questions asked can be summed under three heads: Spring management, controlling swarming when producing extracted honey at out-apiaries, and wintering. These queries were in the main from beginners; yet some who have been in the business for years were inquiring about running out-apiaries, while others are contemplating changing from indoor to outdoor wintering. All replies were answered to the best of my ability (which is not saying that the parties got much satisfaction), and I have been thinking it might not be out of place to give the gist of these replies in GLEANINGS; for, although these subjects are all well worn in some respects, yet they are questions of a vital nature to our industry, and many things in connection with them will bear repetition.

In this article I shall briefly outline my notions as to best methods of spring management; and while I do not pretend that the ideas presented will meet with the approval of all beekeepers who live in northern latitudes, yet they have proved to be the best with me; so, after all, that is the only ground I have to make any claims upon. In fact, no one is justified in debating any thing from the theoretical standpoint alone, as experience is needed to separate the chaff from the wheat in all these debatable questions.

As we have often said, the secret of any successful system of spring management is

in doing the right kind of *fall* work. Having young vigorous queens in all the hives is one of the things to do in early fall. Packing the bees good and snug not too late in the season is another matter. But the greatest factor of all, aside from being sure that colonies have queens with vigor enough to build up rapidly in the spring when other conditions are right, is that I want the bees to have *abundance of good stores*. By "abundance" I mean enough to carry them through till apple-bloom, provided they are not able to get a bit of nectar before that season of the year. Some years, when the weather is favorable, the bees will get enough to keep things going in a way from the time early willows bloom; but such seasons are the exception, in our part of Ontario at least; and whenever the bees are stinted for stores in the spring the colonies do not build up as they do when they have "millions of honey" as friend Doolittle would say. Wintering outdoors exclusively, the first real work in the early spring is to see that snow is shoveled away from front of hives when weather is warm enough for the first flight. This is generally late in March or early in April, seasons varying a great deal one year with another. While I rather prefer snow around and over the hives previous to this time, yet after the bees have had a flight, if at all possible to do so I want snow kept free from entrances from that time on. After a flight, brood-rearing goes on rapidly; and with a fall of wet snow, as we are apt to get late in the season, damage is sure to result if hives are covered for any length of time. If at all

possible I like to shovel the snow away from the hives the night before I expect the bees to have a fly next day. If snow is shoveled away from the entrances during a cold sunshiny day, quantities of bees will rush out on account of the disturbance, no matter how much care is used, and be lost on the snow.

After the bees have had a flight I leave them severely alone for the time being, unless there is standing water in part of the yard; and in that case I scatter straw or other material over such places, as open water in an apiary in the early spring means the death of thousands of bees when they can ill be spared. Of course apiaries should be situated on a dry place; but often, with a heavy fall of snow going away rapidly, water will stand for a few days in places that are ordinarily dry. Watch for these places and save lots of bees during their first flights in the spring.

Although I want to have all colonies as heavy as already intimated, yet I always have a feeling in the spring that one wants to be *sure* that all have enough stores. Accordingly, as soon as snow is all gone so that one can get around the hives readily, I make an examination and see that every colony has sealed stores. This examination takes but a few moments at each hive, and not a frame is lifted in the work. I take off the covers of the cases and turn back the packing at the rear of the hive, rolling the quilt forward so as to expose an inch or two of the back ends of the combs. A few puffs of smoke are sent over the bees gently if needed. Often this is not even necessary, and a glance will at once show if the stores are there or not. Bees wintering outdoors always consume the honey from the front of the hive first; and rest assured, if no sealed stores are in evidence at the rear of the hive, the colony will soon starve if not attended to. In half a day a hundred colonies or more can be examined; and after the work is over, even if not a colony is found short, it gives a feeling of satisfaction to be sure they are all right.

If one is so unlucky as to find starving colonies early in the spring, the only thing to do is to feed in the way that is most convenient. If the weather is warm enough to allow opening of hives, full frames of honey can be given; but for temporary help I much prefer, in a case of this kind, to lay the frame of honey flat over the top of the bees till warmer weather comes later in the season. Candy made of sugar is a handy method of feeding; and as a last resort good thick syrup can be given in a feeder inverted over the bees, and all securely wrapped over to prevent heat coming from the hives.

In running a number of out-apiaries this work outlined is all that I want to do before fruit-bloom comes on; and as that introduces the swarming problem I shall deal with that feature in a future article. I am not in favor of early spring feeding nor manipulation of the colonies in any way. Needless handling of frames and bees early in the spring causes hundreds of good queens to be balled every year, and explains much of the queenlessness in strong colonies that have apparently wintered well. As to early stimulative feeding, even if I felt sure of its benefits in any way, it is entirely impractical to carry out any system on this line when out-apiaries are being looked after. Roads are bad at the season, bees are all packed in winter cases, and to feed hundreds of colonies away from home regularly would mean a great expense and a great amount of work. As I have no use for early feeding unless as an absolute necessity to avoid starvation, I think that those who are following this plan of early feeding are doing a lot of work for nothing. In the early spring bees need all their vitality reserved as much as possible, and experience has shown me conclusively that the feeding of syrup made of sugar, in the early spring, wears the bees out rapidly, with nothing gained to compensate for the loss of the bees or the cost of syrup fed. With normal wintering outdoors, and abundance of stores in the hives, our colonies that have good queens are always boiling over by fruit bloom, and in most seasons many have to be supered at this time to hold back swarming. What more could be desired, even if feeding did help? for who wants bees to get in the swarming mood before the coming of fruit-bloom?

I have been asked what amount of stores I consider necessary to carry colonies through till fruit-bloom. In answer, I can hardly give any thing definite. This winter we have 100 eight-frame Langstroth hives wintering outside in one yard—a hive altogether too small for my ideas, so far as my choice is concerned. About the middle of last October these bees were fed all they would take of syrup, the hives averaging probably 15 pounds of honey each, before being finished up with syrup. The larger hives were all made heavy, but none were given all they would take. As I rarely if ever weigh a hive, I can only guess at the amount given, and would estimate it at about 35 or 40 pounds of stores to each colony. After fruit-bloom we have a dearth for about two weeks, as a rule, and then it will pay, and pay big, to feed the bees—especially to see that all colonies have open stores enough to feed the great amount of

brood that will be present at that time in all strong colonies.

One other point that leads me to see the utter uselessness of early spring feeding is this: In my experience, colonies that are weak in the spring, and yet have a good queen, always have all the brood they can

care for, but are likely to be short in bees. If stimulative feeding is for the purpose implied by its name, to cause the queen to lay more freely, what good will this extra laying do if the bees already have all the brood they can care for?

Mt. Joy, Ontario, Can.

SOME DIFFERENT IDEAS ON SPRING FEEDING COMPARED

Feeding the Entire Amount Necessary, at One Time.

BY E. S. MILES

The subject of spring feeding is, perhaps, one that is about as little understood, and one about which there are as many different opinions as any question connected with our pursuit. Who has not heard the mysterious phrase "stimulative feeding," and who can say positively just what it means? One will tell you confidently that, if you feed a little syrup each day through early spring, even when the bees have plenty of honey in the hive, you will always have strong colonies for the harvest. Another will contend earnestly that, if you see that your colonies have an abundance in the fall—so much, indeed, that they will under no condition of weather run short, you will always have strong colonies for the harvest; and while you are turning these statements over in your mind, hopeful, perhaps, of an ultimate reconciliation, a third steps up and asks, "Did you ever see bees breed as they do when there is a nice flow from fruit bloom, and they have plenty of empty comb?" Now, these three statements do seem at variance at first thought; but, like many things we hear, there is truth in all, and the whole truth is there in the three propositions. There is, however, a little error mixed in the truth of these statements. (How a little error does hinder one from seeing the truth!) So if we are to get at the truth in this, as in any thing, we must begin by eliminating the error.

Experience has shown that, given a good colony of bees in a suitable hive, with good combs and an abundance of stores, so much that the bees will not use them all, no matter how bad the spring should be, they will breed up for the harvest. If this is true, there is an error in the first statement, and the bees build up, *not because* of the daily feeding, as claimed in it, but in spite of it.

But what of the question of a good flow and plenty of empty combs? Do not understand us as claiming the bees will build up under any circumstances, without all the comb the queen needs being available; and as we all know that empty comb alone will

not be sufficient to enable the bees to build up, it follows that it must be the flow, or, in other words, the feed. This brings us to the conclusion that we can do no better than to have a good colony with plenty of food, and leave it alone through early spring.

But another question arises: Suppose, through some misfortune, we find ourselves with colonies not in this ideal condition. Can we feed them after the manner of the natural flow? If so, how? I have done considerable feeding of bees, and under almost all conditions of colonies and circumstances of weather; and my experience thus gained has shown that it is impossible to obtain by feeding as good results as come from a natural flow. A little reflection will show why this is so. The necessity for feeding in spring arises almost invariably from bad weather, and bad weather aggravates the troubles of feeding. On this account, no doubt, we have found it difficult even to approximate, by feeding in bad weather, the results of a natural flow.

We have always observed that, when bees are fed, and especially the first time when they are short of stores, it creates a great excitement among them. If it is daylight they rush from the hive in great numbers, and without noticing, apparently, where they came from or where they were going. In bad weather, no doubt, many never return. If this is repeated day after day, is it any wonder the colony does not increase in strength? If we wait for good weather the colony may starve, and we would feed in any weather rather than allow that.

But if the ideal spring condition is, to quote an eminent authority, "Millions of honey at our house," and if from any cause we find ourselves short of this, why not bring it about by feeding enough at one time?

It may not be possible to do this by syrup feeding in the case of weak colonies; but with good fair colonies it is quite practicable. It must be mentioned in this connection that we have no use for any feeder

which does not allow the bees to take the food at a rapid rate. In our opinion, the Alexander feeder is pretty hard to beat for all practical purposes, especially if it is made large enough. Either have it large, or put two feeders on at one time. In case it becomes necessary to feed, we put on the feeders; but unless the weather is warm enough for bees to fly perfectly, we feed only in case we fear starvation unless circumstances are so we can feed after dark. Then when the first good day comes we prepare enough feed to feed each one enough to last it till there is flow enough to supply the needs as nearly as can be foretold.

If it is early in the spring, and the chances are that they will not gather much for some time, we begin in the morning and feed right along all day, or until they have enough. We find, by this way of feeding, that there is not so much trouble with robbers as where just one feed is given, for the bees soon become gorged, as in a natural

flow, and while in this condition no robbing need be feared.

After this kind of feed they will care for all the brood they can keep warm, which is all one can get under any method of feeding. If, after one of these feeds, we find we have misjudged the future, and the bees begin to gather, it is not a hard job to slip out a comb or two and give empty ones in their place; or if the colony is good, give it a super of combs, preferably a shallow extracting-super. It is surprising how much the bees will use, and how much brood they will mature under this treatment. We like this way of feeding, especially for outyards, for we can fix a yard in one day so it will not be necessary to visit it again for two or three weeks.

In conclusion we should like to ask those who have been feeding after the old way, a little at a time, to try this way on a part of their colonies, and see if it is not an improvement over the old.

Dunlap, Iowa.

CRUSHED OIL CAKE AS A SUBSTITUTE FOR POLLEN

BY R. J. T. MUCKLE

Last spring, 1913, was cold so long that no pollen was to be had, and the colonies were dwindling rapidly, the queens ceasing to lay. I tried flour, corn meal, oatmeal, and finally shorts, and was gratified to see that in this latter I had got something the bees scrambled for. My nephew, for fun, put out crushed oil cake, and from that moment even the shorts were almost deserted. Queens began to crowd the combs with eggs, the bees of which are not only the largest, and incidentally the brightest-colored Italians, but as gatherers of pollen and nectar, and builders of whitest caps,

the best yet produced in the many years I have been a bee devotee.

Flax seed subjected to pressure separates an oil, as you know, leaving in the press a cake of fibrous nature. This is then put through a crusher and becomes the "crushed oil cake" that I use.

This is of immense value in feeding stock. It contains about 50 per cent of protein, and is on this account, I believe, peculiarly suited to the rapid maturing and intense energy of our short-lived friend the honey-bee.

Claudeboye, Manitoba, Can.

FOOD ANALYSES; DIFFERENT FOODS COMPARED AS TO PROPORTIONS OF ACIDS AND ALKALIES

BY E. P. ROBINSON

A number have written for more detailed information than is given on p. 904 of the Dec. 15th issue, regarding food values, how the numbers 1860 and 4220 are obtained, meaning of last column in table, etc. As other readers may also have failed to understand the table fully I write these few lines instead of replying to the letters personally.

The analyses given were obtained from bulletins published by the United States Department of Agriculture, and may be had

by applying to Senators or Representatives in Congress, or by paying a small price.

The figures 1860 and 4220 are accepted by nutrition experts as about the correct number of calories to be obtained from a pound of protein, carbohydrates, and fat when fully digested. A calory is the accepted unit of heat, amount necessary to raise the temperature of one gram of water one degree centigrade.

The figures given in the last column are

merely the result of division of calories or food value of each food by its cost in cents. Take sugar for instance: 1860 calories divided by 5, cost in cents of one pound, gives 372 as the number of calories, or units of heat value, for each cent expended. The last column was headed "Value per cent." If it had been expressed "Value for each cent" it would have been clearer.

Another point not usually considered by students of nutrition is the matter of balance of mineral acids and bases. It is now quite well agreed that an acid (inorganic acid) condition is obnoxious in the nutrition of both animals and plants, and to be avoided so far as possible. Acid soils are neutralized or sweetened by applications of lime, and stomachs are sweetened by doses of soda and magnesia. With knowledge and care in eating, this acidity may easily be avoided, many desirable foods being highly alkaline, as may be seen by the table below.

A preponderance of mineral acids over bases in the diet may result in malnutrition and underdevelopment of the bones, and therefore of the stature and size of the growing child or animal. Rheumatism, diabetes, fevers, rickets, and acidosis also are results of an excess of mineral acids in the

food, as compared with mineral bases. It should be carefully observed that it is mineral (inorganic) not organic acidity that is so injurious, the latter rarely proving obnoxious. An oddity occurs in not a few of our fruits and vegetables, they being highly acid organically, and still more highly alkaline inorganically. Rhubarb is an example, about the highest in organic acidity, and nearly the highest in inorganic alkalinity. It may be stated that all meats and cereals are acid inorganically, while all fruits and vegetables are alkaline. White bread has over four times as much excess inorganic acid as oatmeal. All who eat meats and cereals should also eat liberally of vegetables and fruits.

MINERAL ACIDS AND BASES OF VEGETABLE AND ANIMAL FOODS.

	Mineral Bases	Mineral Acids	Excess Base	Excess Acid
Eggs	484.9	517.8		32.9
Oatmeal	236.4	279.2		42.8
Beef	588.2	712.9		124.7
White bread	192	384.1		172.1
Chicken	619.7	801.2		181.5
Cow's milk	971.14	678.0	293.14	
Onions	886.1	336.8	549.3	
Rhubarb	2581.7	886.0	1695.8	
Spinach	3870.2	1051.3	2618.9	
Tomatoes	5216.6	1512.1	3704.5	

Packer, Ct.

PRACTICALLY NO MUSTARD GROWN IN THE UNITED STATES

BY GEO. J. FRENCH

We have had the pleasure of reading the letter from J. H. Calkins (p. 38, Jan. 1) in which he inquires whether mustard is grown in the United States in a commercial way. What is ordinarily called mustard seed, in our fields, is not mustard seed, but is either wild rape seed or charlock. The only place in the United States where mustard is grown commercially is in the Lompoc Valley in California, and very little is grown there.

The best mustard seed in the world comes from England. There is some grown in Holland, a great deal is grown in Russia, and there are shipments from Italy and Austria; in fact, the seed is cultivated all over the world, particularly in the East, for its oil, which is used as an article of food, the expressed oil of mustard being bland and mild—a delicious salad and cooking oil. The strength, so called, of the mustard, is contained in another oil, which can be taken from the seed only by distillation.

The best mustard flour is not simply ground mustard seed, but is the extracted

flour of various mustard seeds, blended to produce the greatest result in the volatile principle of mustard, which is required in the perfect mustard flour.

We note that Mr. Calkins wants to get in communication with the growers—but there is no one who grows mustard flour; there is one kind of seed grown in the United States, as per the above.

We think in these times of the high cost of living, that Mr. Calkins' ambition to get close to the first cost is a most commendable one. *GLEANINGS IN BEE CULTURE* has awakened a fondness for honey in my own immediate family, and we have bought honey and had honey given to us, and this spring we are going to get closer to the source of supply, just as Mr. Calkins wishes to do—we are going to keep a hive of bees ourselves.

Rochester, N. Y.

[As our correspondent is president of the R. T. French Company, makers of mustard bran, etc., we are sure that he knows whereof he speaks.—ED.]

REPORT OF THE SOUTH DAKOTA BEEKEEPERS' CONVENTION

BY GEORGE F. WEBSTER

The convention was held at Vermilion, Jan. 21, and was a most successful meeting. President R. A. Morgan called the meeting to order at 1:30 p. m., and Geo. F. Webster, of Sioux Falls, was called upon to discuss the subject of bees on the farm. He pointed out that bees are as necessary to the farm and orchard as the flowers are to the bees. He mentioned also the desirability of having honey on the farmers' table in place of the unwholesome glucose syrups, and the pleasure which may be derived from handling and working with bees for any one who has the taste and time for the work.

W. P. Southworth, of Sioux City, gave an interesting talk on experiences and expenses of marketing honey, which was to the point and well received.

F. A. Dahl, of Gayville, described how he produced his big crop of fancy comb honey, having supers piled nine high on some colonies.

T. M. Goddard told of his success with feeding sweet clover, both green and dry, to all kinds of stock, and had found no trouble in getting them to take hold of it with a relish.

Dr. E. A. Morgan, who has had extensive experience as a beekeeper and queen-breeder in the Northwest, led a very instructive discussion of foul brood, giving his method of using the McEvoy treatment, which must prove helpful to those who are having trouble from that source.

The afternoon session closed after it had been decided to hold a picnic next summer at either Vermilion or Gayville—time and place to be decided by the president and secretary.

The evening session was called to order at 7:30, the program opening with the president's annual address, which showed that

the speaker had made the subject, "Does it pay to keep bees?" one of deep study, presenting many facts and figures to prove that honeybees indirectly keep the wheels of commerce moving by making possible great crops of fruit and grain and vegetables. He showed that, as "all flesh is grass," and that as all vegetation is derived from seed, all flowers have to be fertilized in order to produce seed; and the honeybee is one of the principal factors in producing perfect pollination. If the facts put forth in this discourse could be understood by the general public the beekeeper would be hailed as a benefactor.

The subjects of extracted honey, wintering bees, split sections, chaff hives, etc., were taken up, and proved so interesting that a motion to adjourn had to be suggested by the janitor touching the button, causing the lights to blink.

The election of officers resulted in a unanimous vote to retain the present incumbents, R. A. Morgan, of Vermilion, President, and L. A. Syverud, of Canton, Secretary and Treasurer.

Vermilion was selected as the place for the next convention, to be held early in December.

The following among others were present, nearly all of whom took part in the discussions:

Mr. Byerhoof, Geo. Carpenter, Miss Alice Cope (County Superintendent of Schools), Dr. and Mrs. Cotton, Alonzo Cotton, Andrew Dahl, T. M. Goddard, M. L. Mickelson, Dr. E. A. Morgan, Mr. and Mrs. R. A. Morgan, Miss Edna Morgan, W. P. Southworth, L. A. Syverud, Mr. and Mrs. W. A. Vincent, George F. Webster, and T. R. Walker.

REPORT OF THE WASHINGTON STATE BEEKEEPERS' CONVENTION

BY J. B. RAMAGE

We beekeepers of the State of Washington have just held our 20th annual convention. It was the best in the history of our association. In point of numbers, enthusiasm, educational benefits, and good fellowship, we had a larger attendance than any previous convention, and the enthusiasm was at high tide at all times. Every paper and talk was instructive, and every one enjoyed the presence of the others.

We had the pleasure of having with us

Mr. and Mrs. J. B. Espey and daughter, from Iowa. Mr. Espey gave us a short method of curing American foul brood without wasting so much valuable comb and foundation. His talk was very instructive. Mrs. Espey read a paper on why women should be beekeepers. It was also a valuable paper.

Our oldest member who has been a continuous beekeeper, Mr. Anson S. White, Cowichee, Wash., told us how he increased

from four colonies to thirty, and secured 730 lbs. extracted honey. One of the lot was evidently very weak, and has died. All the rest are strong, and have a large winter supply of food. Mr. White has resided on the same farm for the last thirty years, and has kept bees nearly all the time, producing honey by the earload. He is one of the pioneers in the county. Mr. White and Mr. Leigh R. Freeman, editor *Northwest Farm and Home*, are the only ones left of the original members of the association.

All the papers were full of good wholesome instruction, and created a good deal of discussion, especially when the care of alfalfa and sweet clover was mentioned.

Just before the noon hour the secretary called the officers to their feet in front of the members and presented them with the badges of their office, which, he stated, had been generously donated by the proprietors of the *American Bee Journal*. After which tellers were appointed to take the names of all present and give them a badge neatly printed as follows: "Annual Convention Washington State Beekeepers' Association, North Yakima, Wash., January 7, 8, 1914." Every one present offered a vote of thanks to the donors.

The afternoon and morning of the second day were full of discussions, and filled in by music by friends of the association. The piano was generously loaned us by the Sherman-Clay Music Co., the manager being one of the singers.

The banquet was a success in every way. After the toasts the election of officers took place.

The following officers were elected:

E. E. Starkey, Prosser, President; Lee G. Simmons, Ellensburg, re-elected Vice-president (third term); Gus Sipp, Selah, re-elected Treasurer (second term); J. B. Ramage, North Yakima, re-elected secretary (fifth term).

Three new members were added to the list, with promise of more soon. The president, secretary, and C. W. Higgins were elected a legislative committee to draft the foul-brood law and have it presented to the legislature in January, 1915, and do what they could for its passage.

When the convention adjourned, the happiest bunch of beekeepers separated which it has been my lot to be associated with in my beekeeping experience.

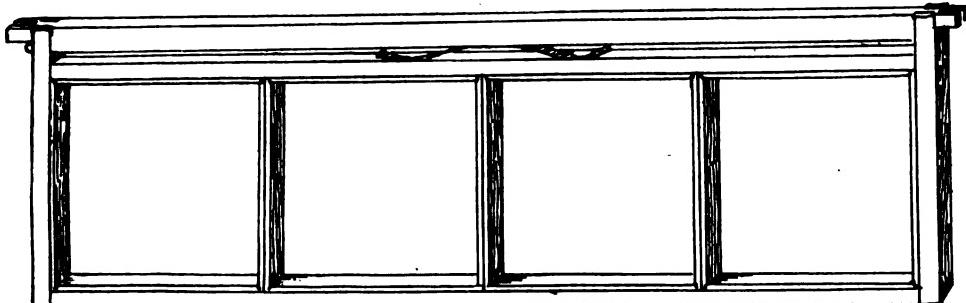
North Yakima, Wash.

A NEW WAY TO USE THE NEW SPECIAL SECTION SUPER

BY CHARLES HOWELL

I have been putting the new special super to a test for two years for fancy comb honey, as I wanted to use a section-holder that would protect the section all around, and I find some difficulty in getting the sections out of the frames. Furthermore, I do not like the odd-sized sections. Both

gives the four sections good compression, so that one can handle them as easily as brood-frames. I do not tier up, as I can easily take out finished sections and fill in with empties, so this is a big saving. The $\frac{1}{4}$ -inch bee-space above sections is a great help to the bees in doing fine work.



objections I have done away with without making any change in any of the fixtures.

By using the $4\frac{1}{4} \times 4\frac{1}{4}$ plain section in the frames made for the $4\frac{3}{4}$ sections I place a slat 17 inches long on top of the sections held in place by one super spring, which

I do not think there is a super made that can beat it. One can finish up all his $4\frac{3}{4}$ sections all in the same super until they are gone, produce chunk or extracted at the sides if desired, and still be using regular fixtures.

Hackettstown, N. J., Jan. 5.

COMMENTS ON SOME RECENT STATEMENTS

BY J. T. BOWEN

HOW LONG HAS THE SMOKE METHOD BEEN USED?

A unanimous vote of thanks is due Mr. A. C. Miller for his smoke method of introducing queens. Nearly 3000 years ago Mr. Solomon said there was nothing new under the sun. At said period milk and honey was an article of food, so may be Mr. Solomon or his apiarists knew all about smoking in the queens; at any rate, Mr. R. F. Holtermann has been using it over 30 years, page 902. Mr. Hopper, of Jamaica, West Indies, of queen-rearing fame, used the same practice—to what extent I don't know; but in 1905 I saw his colored assistant run in queens at the entrance with smoke, sometimes rolling them first in honey.

FLOODED BEES.

Blessed be the beeman who has no need of a bee-cellars and no fear of snowstorms. Page 5, Jan. 1, Dr. Miller is found dreading in what condition he will find his bees in the cellar on his return home; and the A. I. Root Co. is digging colonies from three feet of snow. But "man is born to trouble as the sparks fly upward." December 30 it rained and rained, and then rained some more. The following morning found every one of my 145 colonies under water from 2 to 6 inches. Three were floating abroad. Still it rained; but a big day's work lifted them on to their stands. I feared a tremendous loss. January 8 was California weather. Every colony seemed on a rampage. Even the three that went swimming suffered no harm beyond that of moldy combs.

Page 731, Oct. 15, 1913, John Pashek uses $\frac{1}{4}$ -inch-mesh to keep out mice. I should think the bees would have a hard time in carrying out their dead. I use $\frac{3}{8}$ -inch, which is mouse-proof, and offers less inconvenience to the bees.

A GOOD RECORD BY A BLACK COLONY.

On page 728, Oct. 15, A. P. Haberecht has an apiary ranging from pure blacks to golden Italians, and as honey-gatherers finds no difference. My 145 ten-frame colonies are a similar mixture. My record colony gave me two big swarms (i. e., Alexander), and seven supers of extracted. I run eight frames in supers. The queen was so black I thought I would end her career in the spring, but hated to do so, as she was beating every other queen at laying. Her progeny were like their mother—not a

yellow streak to indicate any trace of Italian blood. With such a record, hands up of those who would advocate changing such a queen for an Italian or any other foreigner!

On page 843, Dec. 1, Arthur C. Miller says bees don't sting dead things. Don't you believe it, Mr. Miller. Once in Jamaica, W. I., I threw away a dead rat—yes, sir, really dead. Accidentally it struck a hive. A few seconds later, not knowing the cause, you might have sworn that colony was swarming. They settled in a heap on that poor dead rat. If they were not stinging it, then what under the sun were they doing? Not till I pulled it away with a long stick did they become tame.

LIVING TO BE 100 YEARS OLD NOT YET OUT OF FASHION.

A. I. Root expresses a hope that he will live to be 100 years old. That should be easy so long as he continues to behave himself. My grandmother went home at 102 years, after bringing up to maturity 14 children. My great-grandfather went to sleep with his fathers at 100. Both were of English stock. Neither of them was a student of dietetics. They took no thought what they should eat or what they should drink.

GREAT DIFFERENCE IN COLOR OF ALFALFA HONEY.

I wonder if Bro. Chadwick is still of the conviction that alfalfa honey is always one and the same color. This is a purely alfalfa district, dependent solely on irrigation. Wild flowers have long since passed before the honey-flow, hence there is absolutely nothing to give coloring to the nectar; yet between the first and last extracting the difference in color is so pronounced that ancient Isaac, whose sight was so dim he didn't know Esau from Jacob, could, I think, make a good guess as to which was light and which was dark. If the above is not so, then I must be color-blind or I need an oculist.

BEES CHASING BLACKBIRDS.

Has anybody ever seen bees chase blackbirds? In this valley we have millions. The past season I have repeatedly noticed a bee apparently making a desperate effort to overtake one of these birds. Whichever way the bird would twist, the bee would follow.

Dixon, Cal.

Heads of Grain from Different Fields

A Vision of Spring

The trees still stand naked and brown and bare,
With never a leaf showing anywhere.

The snow's piled deep, and the winds are chill
As they sweep o'er the orchard upon the hill.

The bees are housed in their quarters snug,
With plenty of honey for each small "bug;"
And they scarcely hum; they're almost as still
As the giant trees upon the hill.

But we'll shut our eyes, and in vision see
How the spring will alter each bare brown tree.
See! out from their cozy cradles come
The leaves and the flowers, one by one,

Till even the tiny gurgling rill
Will sing of the fragrance upon the hill.
Then deep in their hearts, 'neath the pollen gold,
The blossoms a promise of fruit will hold.

And, courting the blossoms, we find the bees
In the branches swayed by a Maytime breeze.
In the happy hum of the bees we hear
The promise of honey to eat next year.

Though the trees are bare, and still the bees' hum,
We know that the glad spring in due time will come.

Gladwin, Mich. IREMA TRUE SOPER.

Trouble in Making Hard Candy

I have been trying to make hard candy for bees according to the instructions given in GLEANINGS. It is easy enough to boil it down to the consistency you recommend, but it is difficult to do so without darkening the candy and having it go back to sugar. I have tried to make it several times, and each time I got a cake of sugar about the color of goldenrod honey. Some of these experimental batches were boiled briskly, and others very slowly; but in each case the result was about the same. It is not fit for bees. If you can give any further information it would be appreciated.

St. Paul, Minn., Jan. 9.

SUBSCRIBER.

[We are not sure from what you say that your candy is unfit for the bees. Goldenrod honey, owing to the fact that it is so often not pure goldenrod, varies in color from quite light to quite dark, so your comparison is not definite. The candy, as we make it, is considerably darker than most clover honey, but not dark enough to be called a dark amber. It might be called light amber, but, of course, this also is somewhat indefinite.

When you place a little of the candy in your mouth you should not be able to detect at once a strong scorched or burnt taste. We have just been eating some of our candy, and we find after it has remained in the mouth a few minutes it is possible to detect a slight taste along the caramel order—a pleasing taste rather than a scorched burnt taste. If your candy has a distinctly burnt flavor we are sure that you boiled it too fast or else too long. Perhaps you added too much water in the first place, so that it required too long exposure to the heat to evaporate it to the right consistency.—ED.]

The 4x5 Sections Used in a 4½ Square Section Super

I am using 4x5 sections in an ordinary super made for 4½ square sections without any change in the super except strips nailed to the upper edges to make the side walls the proper height. Instead of putting a false end in each end of the super to take up the extra space I make a special fence, the end cleat on one end of which is enough wider to make the fence reach from one end to the other of the super. The section-holders are also a little different,

one upright being nailed far enough from the end of the bottom-bar to be just right for the four sections.

I use the 4x5x1½ sections in the same supers formerly used for the 4½ square section. At any time if I should want to use the latter again it will not be necessary for me to pry out any false ends in the supers, nor to make any other alterations.

I use a top-bar over the sections, so that I really have wide-frame section-holders. I find that this keeps the sections cleaner, and saves lots of scraping.

San Jose, Cal. W. A. BARSTOW.

Granulated Sugar Not Suitable for Queen-cage Candy

Being a subscriber to GLEANINGS, I am presuming on that fact to address you. I also have your A B C book. In looking over its columns, I note the formula for making "Good" candy. I find that the common granulated sugar is not a success in making this candy, as the crystals will not dissolve. I have plenty of pulverized sugar, but fear to use it on account of the small quantity of starch or flour that all this class of sugar contains. Would the common unrefined brown sugar do? I note a late formula in GLEANINGS for making candy, but can not get all of the ingredients. What shall I do?

Berea, W. Va., Jan. 1. J. E. MEREDITH.

[It is not practicable to make Good candy using granulated sugar or even brown sugar. The only thing that you can use is pulverized sugar. Usually you can secure this without any starch in it. It is very possible and even probable that the pulverized article you refer to has no starch in it. We suggest that you try making it according to the directions given in the A B C and X Y Z of Bee Culture. In the mean time, if you desire candy for feeding bees during the winter we refer you to the hard candy referred to in GLEANINGS. See Jan. 1st issue.—ED.]

Wintering Bees in a Room with an Open Window; Deep vs. Shallow Frames for Wintering

Would it be practicable to keep two or more colonies of bees in a building 15 feet square, using a window four feet square as a common entrance? Other conditions being equal, should bees winter better in deep or very deep frame hives than in shallow-frame hives?

Marlboro, N. Y., Dec. 8. CHAS. E. DOWLING.

[It would not be impossible to keep bees in a room with an open window such as you describe, but we do not believe it would be advisable. The bees, after a time, would get accustomed to going into this opening, and then into their individual hives; but the difficulty would come at the close of the day when it became so dark that the bees would not be able to locate their entrances properly, and on that account would not fly out very early nor very late in the day.

The time was when it was thought the bees would winter better on deep frames or square frames than on shallow ones; but if one shallow hive is placed on top of another the advantage is in favor of the shallow frame. The bee-space between the two sections makes it possible for the cluster to reach the stores in any part of the hive, and at the same time provides a fine clustering-space.—ED.]

The Heat of a Solar Extractor

Is the heat in a solar wax-extractor detrimental to the wax? It has been asserted that the heat generated causes the wax to be too brittle for foundation. I have never tested the heat in mine, but it must go over boiling-point of water, I think. I will note it

when we get a really hot day. Mine is $2\frac{1}{4}$ ft. deep, and there are two sheets of glass with an inch air-space between.

St. Albans, Christchurch, N. Z. E. G. WARD.

[Heat from a tropical sun where a double glass is used in the solar extractor will sometimes scorch wax; but nowadays a single glass is used almost universally. Years ago, with a double-glass machine we fried eggs, and raised the temperature nearly up to the boiling-point. As wax melts at 140 degrees the wax might be burnt if retained too long in the machine.—ED.]

The Quarantine on Bees in Imperial Valley, California

Mr. Editor:—It would seem to me, after reading your issue for Jan. 1, that a few words from me would not come amiss. One J. Eggar Ross, a part of whose letter you published, presumed to take up the cause of a few disgruntled beekeepers and writers who were trying to override an ordinance in force in this county by bringing in bees in violation of a quarantine. This letter was published in full in the *Western Honeybee*.

Space will not permit me to go into his letter in detail, so I will take up the most of the important points.

He says great injustice was done to a party who shipped in a carload of bees. Nearly every beekeeper in this country knew that these bees were coming in to test the law, and fully expected to take this into the courts, and that the railroad company refused to deliver them to the consignor, as I held the railroad company responsible for violation of quarantine, and they returned them to the consignee after keeping the wires hot three or four days.

I acted only in the capacity of an officer doing his duty, of which the owners were fully aware. The question as to whether they were healthy or not never entered the case; but they came from a quarantined county.

He goes on further to state that I permitted some to come in while I objected to others. Again he is silent as to the reason for this apparent partiality. This was before the quarantine was established, and was like this: The ordinance leaves it to my discretion as to whether or not bees could be brought in. There were certain counties that I accepted a bill of health from without question, and others I was not so ready to accept; and I explained my position in each case. Personally I treated all alike, without favor or favor.

Now as to the dog-in-the-manger argument. If the beekeepers were not afraid of importing disease would they not have gone out and bought up these cheap bees? They have as good a business instinct, and are as anxious for bargains here as anywhere else.

One more point: Mr. Ross puts himself up as an expert on bee diseases. The fact is, he did not know American foul brood when I showed him a case in his yard last spring.

I think Imperial Co. has gained a great point in the enforcement of this ordinance for which they have a progressive board of supervisors and district attorney to thank by standing back of the bee-men, for which the bee-men are very appreciative.

A. F. WAGNER, Inspector.

El Centro, Cal., Jan. 21.

Twin Mating Nuclei with Three Combs on a Side

I am making up a supply of twin mating-boxes a little different from any thing I have seen. I am making them with loose bottom and loose central division-board fitting in grooves cut in the ends and resting on the bottom-board with division-board out. They take seven frames the same size as the frame

in the Root twin mating-box, the only difference being a long top-bar with division-board in. They take three frames to a side, making a nucleus with comb area the same as one standard L. frame. Three of these boxes united, with division-boards out and frames substituted, make a colony for winter with comb area the same as seven standard L. frames.

Liberty, Tenn., Dec. 15. J. IVAN BANKS.

[Your form of twin mating-box is almost the same as the one that we are using in our own yard. We started out with the idea of making the central division-board removable. It is of very thin stuff, and slides down into corresponding grooves in each end-board of the nucleus box. While these can be removed very readily when the hives are new, it is practically impossible to get them out when they are stuck up with bee-glue. We find it perfectly practicable to run the twin nuclei side by side, and there is really no need of withdrawing the central division-board except at the close of the season. A plan could be readily devised for making the division-board easily removable, even though it were covered with propolis at the end; but it would be quite expensive.—ED.]

Bees Working on Sawdust for Pollen

A few days ago I sawed 20 cords of green wood. To-day is a warm shiny day, and the pile of sawdust is entirely covered up with bees. They seemed to be gathering pollen so far as I could see. I noticed some of them had a good bit of pollen on their legs. Never before have I seen bees after sawdust.

Roanoke, Va., Jan. 22. HENRY S. BOHON.

[During a dearth of pollen, when the bees are fairly crazy for it, they will make things pretty lively about stables where bran is kept, or about a barn where there is an accumulation of screenings, etc. We have heard of bees working on sawdust, although not very often. Whether they really get a nitrogenous substance that they can use in brood-rearing, or whether they are deceived, we do not know. It is hard to imagine any thing nutritious for young brood in sawdust.—ED.]

No Bad Results from Feeding Thin Honey in the Fall

I have read the article on feeding sugar syrup by J. E. Hand, Dec. 1, p. 858. I consider this an important question, but it seems to me Mr. Hand is mistaken in his claim that the bees do all the evaporation while on the wing. If so, why do we find thin nectar in the extracting-super, and that, too, when the bees are gathering only a little.

I have never fed such thin feed, but for a number of years I have practiced feeding back honey thinned to the consistency of nectar, through the month of September, for the purpose of finishing sections, and have never experienced any winter loss from those so fed. On the other hand, I sometimes lost 15 per cent of those not fed, which has led me to believe that fall brood stimulation is good. Last fall I fed all my bees half a pint of thin honey each night from Sept. 17 to Oct. 4, the result of which I shall watch with interest.

Durkee, Ore., Dec. 13. J. O. BAIRD.

Color of Alfalfa Honey Differs with Successive Crops

P. C. Chadwick, of California, holds to the opinion that one kind of flower gives but one sort of honey so far as color and flavor go. He would not think so if he lived in the Pecos Valley. As alfalfa is our only honey-plant through the summer, how is it then that the nectar from the first and second crop is amber, at least, while the third crop's honey is water-white?

Dexter, N. M.

O. VANDEN BOUT.

Our Homes

A. I. Root

Be glad in the Lord, and rejoice, ye righteous, and shout for joy, all ye that be upright in heart.
For of such is the kingdom of heaven.
And a little child shall lead them.—ISAIAH 11:6.

A year ago I told you about being happy over a Christmas present—a little bag of dasheen tubers that came in the mail on Christmas eve from the Department of Agriculture of our nation—*God's gift*—and I believe it will prove to be a precious gift to hungering multitudes. Well, I have just received another new and most precious gift; but it is more along in the line of spiritual blessings than either food or raiment. When some kind soul sends me “a book to read” of late years, I almost always feel a bit sorry; for how can I read books when the news of the world's progress lies untouched before me, week after week, and often month after month, because I can not get time and still take the exercise in the open air I must have. I have tried several times to read current fiction; but almost every time, after wasting precious moments, I have said invariably, “Why do ye spend money for that which is not bread, and labor for that which satisfieth not?” Christmas eve came, and several books. Among them was one entitled “Pollyanna, the Glad Book,” by Eleanor H. Porter. (L. C. Page & Co., Boston.) I believe it first came out in the *Christian Herald* in 1912. Since then it has, during the first half of 1913, undergone “eight impressions.” I read the first chapter and said to Mrs. Root, “This book is different.” Although it is of late hard for me to read any thing more than about half an hour at a time, the book was finished next day. Then I turned back to the beginning and proceeded to *read it all over again*, for the latter part threw a new and unexpected radiance (yes, that is the word) over the whole book. In one sense it is not a “religious” book. I don't think a text is quoted, nor is there any mention of the Bible, until near the last part. It is a unique creation. May God be praised for the woman whom he has commissioned to deliver this message to an *unhappy* and hungering world.

Before I can deliver my “message” I shall have to give you a brief sketch of the book. My sketch won't spoil the book when you come to read it. Briefly, the well-to-do parents of a bright young girl planned to have her marry a rich young man; but she preferred a young and perhaps obscure young preacher. They stormed, and threatened; but, like Moses of old, “choosing

rather to suffer affliction with the people of God than to enjoy the pleasures of sin for a season,” she cast her lot with the young pastor, and, disowned by her family, they two moved out west and he began with the customary small salary. In the eyes of the world he didn't seem to be very successful. ‘Oh, dear me! how little does the *world* know! Two little girls were born—“Polly” and “Anna”; but both soon died; and after giving birth to another, named Pollyanna, the poor unfortunate mother died also. When the last little girl was eleven years old, the overworked and poorly paid pastor died also, with nothing left for the poor child but a few things that had come in “a barrel” from some “ladies' aid” society. They found the child had only one relative living—her aunt Polly, who was living an idle, unsatisfied life, and who had not, after all these years, forgiven her poor sister's “want of sense” in marrying a preacher without a cent in the world. Now, this poor preacher who lacked fame and renown, and the things of this world, was (especially before he died) rich in God's Holy Spirit, and he spent the last days of his life and his last remaining strength in instilling into the heart and mind of that eleven-year-old child the riches of God's holy kingdom. Happy as a lark, she started out on her mission, the ladies' aid society paying for a ticket to her Aunt Polly.

Now this wise father, recognizing how difficult it is to teach children spiritual things, had been teaching the motherless girl a little “game,” as he called it, and this game was to try to find something to be “glad” about, no matter what comes up. To illustrate: When the child first came, her aunt, who prided herself on her fixed rules and promptness, told Pollyanna to be sure to be on hand when the supper-bell rang at six o'clock; but the child was away off in the fields, admiring her new home. As a punishment she was told she could have only “bread and milk” in the kitchen with “Nancy.” To her aunt's great surprise, and almost consternation, she replied, “Oh! thank you, Aunt Polly. I just love bread and milk, and I love Nancy too; and you needn't feel bad about it, one bit.” In fact, her little life was just full of the beautiful text commencing “Rejoice and be glad;” and that was not all. She commenced at once teaching every one, young and old, rich and poor, the beautiful “game,” as she called it, of being “glad” always. By accident she ran across a poor discouraged minister

in her new home. He had gone off into the woods to pray. His deacons were in a quarrel. Three of the best workers in the "ladies' aid" had withdrawn; the choir had "split;" the officers of the Endeavor Society were in a jangle; and the Sunday-school superintendent had resigned; and while he was praying over the troubles, God sent Pollyanna as an angel of light to his troubled soul. Here is the way the book tells it:

"Do you like being a minister?"

The Rev. Paul Ford looked up now, very quickly.

"Do I like—Why, what an odd question! Why do you ask that, my dear?"

"Nothing—only the way you looked. It made me think of my father. He used to look like that sometimes."

"Did he?" The minister's voice was very polite, but his eyes had gone back to the dried leaf on the ground.

"Yes, and I used to ask him just as I did you if he was glad he was a minister."

The man under the tree smiled a little sadly.

"Well, what did he say?"

"Oh! he always said he was, of course, but 'most always he said, too, that he wouldn't *stay* a minister a minute if 'twasn't for the rejoicing texts."

"The—what?" The Rev. Paul Ford's eyes left the leaf and gazed wonderingly into Pollyanna's merry little face.

"Well, that's what father used to call 'em," she laughed. "Of course the Bible didn't name 'em that. But it's all those that begin 'Be glad in the Lord,' or 'Rejoice greatly,' or 'Shout for joy,' and all that, you know—such a lot of 'em. Once, when father felt specially bad, he counted 'em. There were eight hundred of 'em."

"Eight hundred!"

"Yes—that told you to rejoice and be glad, you know; that's why father named 'em the 'rejoicing texts.'"

"Oh!" There was an odd look on the minister's face. His eyes had fallen to the words on the top paper in his hands—"But woe unto you, scribes and Pharisees, hypocrites!" "And so your father—liked those rejoicing texts," he murmured.

"Oh, yes!" nodded Pollyanna, emphatically. "He said he felt better right away, that first day he thought to count 'em. He said that if God took the trouble to tell us eight hundred times to be glad and rejoice, he must want us to do it—*some*. And father felt ashamed that he hadn't done it more. After that, they got to be such a comfort to him, you know, when things went wrong; when the Ladies' Aiders got to fight—I mean, when they *didn't agree* about something," corrected Pollyanna hastily. "Why, it was those texts, too, father said, that made him think of the game—he began with *me* on the crutches—but he said 'twas the rejoicing texts that started him on it."

"And what game might that be?" asked the minister.

"About finding something in every thing to be glad about, you know. As I said, he began with *me* on the crutches." And once more Pollyanna told her story—this time to a man who listened with tender eyes and understanding ears.

A little later Pollyanna and the minister descended the hill, hand in hand. Pollyanna's face was radiant. Pollyanna loved to talk, and she had been talking now for some time: there seemed to be so many, many things about the game, her father, and the old home life that the minister wanted to know.

I talked about the book in our Wednesday

evening prayer-meeting, and at the close a lady came to me and said:

"Mr. Root, I am glad to know that you are of such a happy disposition."

"Oh! but I am not. Mrs. Root could probably tell you quite a different story. The reading of that book really startled me to think how many times, almost every day, something transpires that I am not *glad* about at all."

"*Eight hundred times.*" It keeps ringing in my ears. Shall everybody "be glad" *all the time*, no matter what happens? No, no! there are *conditions*. See Pollyanna's text at the head of this talk. It is only the "righteous" and "ye that are upright in heart." It is not enough that we "love God" and "our neighbor as *ourselves*." After having done this we are to "be glad" and "shout for joy." I do sometimes (thank God) shout for joy, especially when I am working out among the "dasheen," and I often feel like it when I don't shout; but, oh dear me! what a tremendous job the dear Savior has on his hands to *finish* the work of making me over so that I am really and "truly," as "Nancy" (bless *her* heart) might say, "born again" and fitted for his kingdom!

Years ago a physician and a church member came to me greatly excited because his reputation was being injured by what he called undeserved gossip. He declared he would go to the full extent of the law. As we were well acquainted I tried to persuade him to stick to business and let it drop. Finally I said, "Blessed are ye when men shall revile you and persecute you, and shall say all manner of evil against you falsely for my sake," but to my surprise it only made him angrier still.

"Mr. Root, is that *your doctrine?*"

I laughingly replied, "No, my good friend, it is not my 'doctrine'; but the doctrine of the Lord Jesus Christ."

A prominent business man, a doctor with quite a practice, and a professing Christian, was in *heathen darkness*, one might almost say, of the blessed promises in God's holy word. It was to him an "unexplored region."

Again, at one of our "teachers' meetings" that were always well attended by quite a number of old Bible scholars as well as an able pastor, I happened to say that *somewhere* in the Bible we were told not only to "rejoice and be glad" when "lied about," etc., but we were admonished to "leap for joy." One of the company felt sure I was mistaken; and when I didn't find it right away the whole company turned on me, and even the minister "turned the laugh on me," because I insisted our Lord ever

uttered any thing so extravagant; but when I read to them Luke 6:22, 23, they made profuse apologies all around.

I mention these two incidents to show how the child Pollyanna was, in her simple faith, "head and shoulders" above the whole community, not excepting the poor, worried, and tried pastor of the church.

Once in a while we find a man (or woman), not *always* a professing Christian, who can look kind and pleasant when big quarrels are started. I know a few such. One man (who may see this) has many a time turned angry looks to smiles by his happy way of starting innocent jokes when trouble loomed up ahead. He is almost always "glad." A daily at my elbow tells of a policeman who, while looking into the barrel of a revolver in the hand of a man who declared he would never be arrested, talked kindly to the man, and finally induced him to surrender peacefully, when he would likely have killed several *more* of his townsmen otherwise.

A few weeks ago I asked you to pray for me that I might have grace to meet the boys that annoyed me a year ago. Well, for a time they seemed to have forgotten all about it until during the holidays, when there was no school. As I came out of the postoffice one day there was a yell I understood, and a crowd of boys were climbing all over my machine.

Asking the Savior to guide me I said, "Why, hello, boys! How many do you suppose this machine will pull? Climb in, all of you, and we will try." This, of course, was unexpected. By managing just right I succeeded in taking the whole load through the streets and up to the bank. It seemed risky leaving them with the machine; but I decided the good will of the town boys was of *more* value than a whole automobile, and went into the bank. I had to wait a little; and when, on looking out of the window, I saw them pulling and twisting every thing movable, my faith and courage began to fail. Just then the story in the Bible of how God told his people to stand still and see him fight the battle came into my mind. When I was ready to go, to my surprise the engine started promptly. At the grocery where I traded the proprietor said:

"Mr. Root, won't that gang of boys injure your machine?"

He seemed surprised when I didn't *seem* disturbed, and he then spoke again.

"Mr. Root, they are actually wheeling it away. Nobody knows where you will find it when you are ready to go."

I presume he thought it strange I didn't call the marshal; but as I saw it moving away I remembered a story of some mission-

aries who held a consultation as to whether they should *fight* the natives who were going to destroy the church, or trust to the power of prayer. What do you suppose happened? When I was ready to go I found my property intact, about ten feet from where I left it, and *not a boy in sight*. The old doctrine of "an eye for an eye and a tooth for a tooth" would have landed both boys and myself—where? The individual who *can* "rejoice and be glad" under all circumstances will not only be a power in his own community, but—listen to what the scripture says: "He that overcometh and keepeth my words unto the end, to him will I give power over the nations."

THE DIVINING-ROD, OR "WATER-WITCHING."

On page 662 I classed the above among the superstitions. Since that has been in print I am glad to see various periodicals taking it up. The *Scientific American*, in answer to an inquirer, indorsed my statement. The *Country Gentleman* informs us that Germany is making exhaustive investigations to see if it is a humbug. Their conclusion seems to be that these people who call themselves water-witches may have a sort of "intuition" that enables them to guess shrewdly where water is most likely to be found; and, of course, this queer thing which they call "intuition" would not work with their eyes blinded. In regard to the witch-hazel or peach-tree switch they agree that the water-witch must involuntarily make the thing swing around. This explanation, you will see, admits that the water-witch may be honest and sincere. The German people call the water-witch a "dowser." With this explanation let me quote from the *Country Gentleman*:

Our home-bred scientists have, in a way of speaking, doused the dowser with cold water. Replying to the German savants, the majority of a jury of American scientists have rendered this verdict: The divining-rod theory is all rot! "Yes, rot," asserts Professor Hering, who occupies the chair of physics at the New York University. "I don't think any competent scientist in this country has ever taken the divining-rod seriously or attempted to experiment with it. Although I have seen it tested several times I have never seen an attempt to locate water with it result in success." George C. Stone, of the American Institute of Mining Engineers, echoes this sentiment. Professor Peele, of the Columbia School of Mines, adds his contempt for the dowser, and tags him as a charlatan and faker. During the recent drought Kansas tried the "water witch" along with the rainmakers. But he failed, or the water proved to be salty when he did find it.

I am glad to see the matter brought to the attention of men who stand away up in practical experience in matters that should fit them to become judges.

High-pressure Gardening

MORE ABOUT THE DASHEEN UP TO DATE.

When we reached here in November I asked Wesley about the last planting near a ditch where we had never been able to raise any thing, and he replied "Nothin' doin'," even with the dasheens, and said they grew only about a foot high. Some time later I investigated and found quite a crop, after all, of small tubers, very clean and solid, that had grown in almost pure white sand; and, sure enough, we got quite a big wheelbarrow load. When I was a boy (60 years ago) I was enthusiastic on "sorghum," and there was much difference of opinion in regard to the new syrup. Finally it transpired that cane on poor soil produced a much better syrup than that raised on rich mucky soil just right for big crops of corn. I wondered if it would not be so with the dasheen; and, sure enough, these dry tubers, almost as heavy as bullets, were the very nicest for baking. One more "discovery," and a very important one: When we first came I went out to where I planted the Government tubers a year ago, and with my knife I cut out the top of one of the largest corms, taking stalk and big leaves, and had it made into dasheen stew as I have described. Now, the big corm was left in the ground with the cluster of smaller plants all around it. I cut out so much of the corm that it left a saucer-like cavity that held rain water, and I supposed, of course, this would cause decay. Just about two months later, as it seemed to look all right, I took it in for dinner, and Mrs. Root called it the best baked dasheen we had tried. It had kept in the ground right where it grew, perfectly sweet and good, even when mutilated in the manner I have described.

This opens up another fact. In this frostless region dasheen may be left in the ground until wanted for the table, the year round; and, in fact, the very hills that I planted over a year ago are now bright and green, and growing finely. Of course they are greatly crowded, and the central corm has mostly dried down; but the others are still making a larger crop of small tubers. We are dividing these hills of a dozen or more plants, and making new plantations, without waiting to have the tubers die down.

Now, right in here comes something that has been only lightly touched upon. We have found a few of the *corms* that were dug and stored in November that had commenced to decay with what seemed to be "dry rot." But this was mostly when the roof of an outbuilding leaked, or when they were left in heaps before being dried out

thoroughly. When the smaller tubers have been dried in the sun, and then spread out on inch poultry-netting under shelter, they have so far kept perfectly. I wrote to the Brooksville Station about it, and below is Prof. Gomme's reply.

U. S. DEPARTMENT OF AGRICULTURE
BUREAU OF PLANT INDUSTRY
*Foreign Seed and Plant Introduction
Plant Introduction Garden*

Dear Mr. Root:—Your letter of Jan. 8 came to hand. We have experienced trouble in the keeping of the corms of the dasheens. The rot you speak of may be due to two things—viz., dry rot, or a fungus known as *sclerototum*. I am sending your letter to Mr. Young, in Washington, who will, no doubt, write you fully. He has charge of the dasheen project, and would rather, perhaps, give his views of the matter. This year all of our medium and seed tubers have kept well, but the corms as usual have decayed somewhat. I find that they will decay under any conditions, especially if stored damp. The corms especially evaporate while in storage. From our planting on the 8 1/4-acre tract, we obtained about 1098 bushels, which was not a bad yield.

I wish to thank you for sending me GLEANINGS. It is very interesting and instructive. Myself and wife both enjoy it.

Brooksville, Fla., Jan. 11.

WM. GOMME.
Assistant Farm Superintendent.

U. S. DEPARTMENT OF AGRICULTURE
BUREAU OF PLANT INDUSTRY
Foreign Seed and Plant Introduction
**DASHEEN CORMS—MORE ABOUT THEIR KEEPING
QUALITIES.**

Dear Mr. Root:—Mr. Gomme (of Brooksville, Fla.) has referred to me your letter of June 8 inquiring with regard to the keeping of dasheen corms. The corms of the dasheen do not keep as well as the tubers. This is, no doubt, partly because the corm is the first growth that takes place, and it would naturally be the first to yield to decay of any kind. While temperatures as low as between forty and forty-five degrees may lower the resistance of the corms we have no data to show to what extent this affects their keeping qualities. It is likely that they are affected by some definite disease, such as that known as Rolf's *sclerototum* or one or two others to which the dasheen is susceptible.

In our last circular on the dasheen, issued in May, 1913, we advised using the dasheen corms as soon as practicable after harvesting, because of their not keeping as well as the tubers. A copy of this circular is supposed to have been sent to you; but on the chance that you have not received it I am asking that another one be sent. I also enclose herewith a sheet of special directions for baking the corms, and general directions for cooking dasheens. If any other information is desired regarding dasheens I shall be very glad to answer as far as possible.

R. A. YOUNG, Scientific Assistant.
Washington, D. C., January 16.

Permit me to add to the above, that up to the present time (Jan. 19) the safest way to keep the corms here in Florida is to leave them right in the ground where they grew, until wanted for the table. I have been using them twice a day all winter, so far, and greatly prefer them, as a steady diet, to the best Irish potatoes. Here are the directions referred to:

DEPT. OF AGRICULTURE, WASHINGTON, D. C.
THE COOKING OF DASHEEN CORMS.

The dasheen is one of the new vegetables with which the Department of Agriculture is experimenting in the Southern States. It is the staple food of millions of people in tropical and subtropical countries. The plants themselves look something like the large-leaved ornamental caladiums or elephant-ears of the garden. Various parts of the plant are edible, but the principal food is furnished by the large, spherical corm, or "tuber," and a number of smaller tubers which are attached to it in the ground.

The dasheen corms can be prepared in many ways; but they are generally liked best when *parboiled for about fifteen minutes*, and the cooking completed by baking in a *fairly quick oven*. Depending upon the size, they should be baked from one to two hours, a fork being used to test them. Corms weighing more than two pounds should generally be cut in half from top to base (lengthwise) beforehand, in order to reduce the time necessary for baking, and to prevent the chance of forming too thick a crust.

The appearance of the corms for serving is improved by scraping off the fibrous skin before boiling. If this is done and the corms are not baked so long as to make the crust thick and hard, it will be found to be of delicious flavor. If the corms are dipped in water during the scraping, as is usually done, a little baking soda should be added to the water; otherwise a slight irritation to the hands may be caused.

The interior of the cooked dasheen may be cream white, pearl gray, or some shade of violet. It is usually quite mealy, though sometimes, especially when first opened, it may be somewhat moist. The flavor is generally more or less nutty. The upper or bud end, after cooking, is sometimes rather moist, or a little fibrous, as compared with the middle and lower parts, and when so may be discarded.

As soon as done the corms should be cut open lengthwise, covered with a napkin, in a warm dish, and served *immediately*. If they have been cut open before cooking, the thin crust formed over the cut surface should at once be lifted, on taking from the oven. (This crust is itself very palatable.) The mealy interior can be taken out easily with a fork or spoon. Baked dasheens are generally drier than baked potatoes, and therefore need more butter. Salt is used in seasoning.

If impossible to serve immediately when done, the corm should be prepared for serving, as already described, or pricked several times with a fork to allow the steam to escape, and kept covered with a napkin, or other loose cover, in a warm place. If avoidable, however, there should not in any case be a delay of more than a few minutes in serving.

THE OBJECTIONABLE FEATURES IN REGARD TO GROWING ALFALFA.

I suppose there really are two sides to every thing. A periodical called *Better Farming* sums up the one objection to having a field of alfalfa. Here it is:

There is one objection to alfalfa: It was discovered by an Oklahoma farmer who uncovered his aching heart the other day in print, and told his tale of woe. He said: "We hear a good deal about the value of an alfalfa crop. Some people never let up blowing about it. They tell you if you feed it to your work team you won't have to feed grain to keep them fat; that it is worth pound for pound as much as bran for feeding milk cows; that it is one of the best pork-producers; that it is fine for feeding beef cattle. Give us a rest! It makes us tired! In May, just at the time you ought to be hoeing out your cotton, you have to go into your alfalfa field and cut the first crop. Then in June, just when you

have a chance to go fishing, there's another crop of alfalfa to cut, and you don't go. It's blazing hot in July, and you feel like you ought to shade some, but you have to get in another crop of alfalfa. In August you want to go to camp-meeting, swap yarns, have a good easy time, and imagine you have got religion. But you can't—there's that dog-goned alfalfa again. In September it has always been your custom to visit the wife's kinfolks, but do you do it? Not much. Confound that alfalfa! In October you are done with most other crops, and you want to go off to that gambling contraption known as the county fair, and spend some of your money, but you have to harvest another crop of that infernal alfalfa. And in November in desperation you turn the cattle in on the field, and they graze on it all fall. Are you through then? Heavens, no! You've got to spend all winter feeding it up."

Eye hath not seen, nor ear heard, neither have entered into the heart of man the things which God hath prepared for them that love him.—I. COR. 2:9.

FLYING TO BE MADE SAFER IN THE NEAR FUTURE.

I am sure the friends who have followed me in my reports in regard to the development of aviation by the Wright brothers will read with interest the following, clipped from the *Cleveland Plain Dealer*:

DAYTON, O., Jan. 5.—Orville Wright, premier aviator, to-day discussed the possibilities of his automatic stabilizer, which, he declares, will make flying "fool proof" and as comparatively safe as transportation by land. It means that an unskilled operator may make a trip from Dayton to New York and return with comparative safety. He said:

"We have invented an automatic stability device which will revolutionize flight," said Wright. "It is more accurate than any aviator can be, and will make flying fool proof, or as nearly fool proof as any thing can be. I have flown many miles with it and have never touched the controls. We are now simplifying, and expect to be able to bring it to the point where it may be put in general use by early spring.

"We believe in making aerial work as safe as any on land," he said, "and we will continue to labor in that direction. We hope to see the day when it will be just as safe to board an aeroplane and take a long trip as it is at present to make this journey behind a locomotive.

"The stability device will go a long way toward making this dream a reality, and we are enthusiastic about it. Our device insures lateral as well as fore-and-aft stability. It depends in part on electricity, and we shall soon have the mechanism so perfected that it will not get out of order, and that means safety in flight.

"As may be generally known, many of the accidents in aviation have been due to what is called stalling. The aviator lets his speed sag below a certain point, the point necessary to secure sufficient wind pressure on the wings to sustain the machine, and it falls. Nothing can stop it.

"If he is traveling on an even keel when he reduces his speed below the danger-point, his machine will slide back, tail first, to the ground. Our device prevents the plane from rising too sharply; and if the speed falls below the danger-point it automatically directs the machine to the ground so that it will acquire speed enough to sustain it."

Discussing the future of the aeroplane, Wright said:

"The aeroplane will be used for commercial purposes, especially as a means of speedy transportation over vast distances. Over waste places and deserts

The aeroplane will be used; in fact, wherever water is not available.

"Mails will be thus carried, doubtless, over large stretches of territory in Texas, Utah, and New Mexico. Automatic stability is all that is needed to make it wholly practical, and I believe we have solved the problem."

Judging from a pretty close acquaintance with Orville Wright, I feel sure he would not express himself so hopefully were it not that he has some very good reasons for so doing. I wonder if they will not be coming down to Florida to test this great invention.

DASHEEN, FLYING-MACHINES, AND SOME- THING ABOUT GOD'S NEW AND WON- DERFUL GIFTS TO US IN 1914.

Some of you will think, no doubt, my heading embraces a queer combination. Well, perhaps it does; but the idea was suggested by a picture Huber has just sent me of our Medina plant that is to come out in our new catalog. When I stirred the world up on bee culture years ago I had, as people thought, some extravagant day dreams of the outcome of the honey industry; but it is all coming to pass, and even more than I ever dreamed of. Later, when I visited the Wright brothers, and told what I had seen, the world laughed again; and I confess events have crawled along a little slower than I expected; but just listen to what has been going on almost "under my nose," and I didn't know it. About a week ago our good friend Mr. Gault (of "Gault raspberry" fame) wrote me as follows:

Dear Mr. Root:—As you are interested in air-ships I enclose a circular which you may care to look over. If you come over, call on me.

St. Petersburg, Fla., Jan. 6. W. C. GAULT.

Below is a copy of the circular.

ST. PETERSBURG-TAMPA AIR-BOAT LINE; FAST PASSENGER AND EXPRESS SERVICE.

Schedule:—Leave St. Petersburg 10:00 A. M. Arrive Tampa 10:30 A. M. Leave Tampa 11:00 A. M. Arrive St. Petersburg 11:30 A. M. Leave St. Petersburg 2:00 P. M. Arrive Tampa 2:30 P. M. Leave Tampa 3:00 P. M. Arrive St. Petersburg 3:30 P. M.

Special-flight trips can be arranged through any of our agents or by communicating directly with the St. Petersburg Hangar. Trips covering any distance over all-water routes, and from the water's surface to several thousand feet high at passengers' request.

A minimum charge of \$15 per special flight.

Rates: \$5.00 per trip. Round trip \$10.00. Booking for passage in advance.

Note.—Passengers are allowed a weight of 200 pounds gross including hand baggage; excess charged at \$5.00 per 100 pounds; minimum charge 25 cents. Express rates, for packages, suit-cases, mail matter, etc., \$5.00 per hundred pounds; minimum charge, 25 cents. Express carried from hangar to hangar only; delivery and receipt by shipper.

Tickets on sale at hangars or city news stand, F. C. West, Prop., 271 Central Ave., St. Petersburg, Fla.

I confess at first I could hardly believe that an airship right here in Florida was carrying passengers and express matter on a schedule, and I wrote asking if it was

true, and if they really were making daily trips. In response I received a copy of the St. Petersburg daily for Jan 6, from which I clip as follows:

SWIFTER THAN ANY CRAFT IS THE AIR-BOAT; ST. PETERSBURG-TAMPA LINE AVERAGED TRIPS YESTERDAY IN 22 4-5 MINUTES.

Averaging twenty-two and four-fifths minutes per trip the St. Petersburg-Tampa Airboat Line is carrying out the schedules advertised, and is making time between this city and the terminal across the bay which few express trains could equal. Yesterday in the two trips to Tampa the time was, first trip, 24 minutes over and 22 back; second trip, 21 over and 24 back. This is time which is unequalled in the South by either passenger trains, automobiles, or any other passenger-carrying flying craft but the Benoist.

Tom W. Benoist, who is the head of the manufacturing company in St. Louis which makes the Benoist air-boats, is rushing his works to capacity in order to send several more machines here as soon as possible. Jannus and Fansler state that they are expecting to hear from him any day with the information that the machines have been placed in transit. With the arrival of the additional air-boats the service to Tampa will be greatly improved, and more passengers can be carried every day. With additional air-boats new trips may be arranged, and it is possible that Bradenton and Pass-a-Grille will be put on the list of ports of call. With a variety of trips which may be made by the air-boat more passengers will be carried, and the entire fleet of machines kept busy every day, is the belief.

That the inauguration of this, the first commercial line of flying craft in the world, St. Petersburg is becoming known in a way she was never before heard of, and by people who otherwise would likely never hear of this city.

Later.—After being in operation for two weeks, during which time the air-boat line has maintained its schedule without any serious mishap, the little air craft, after completing the flights made yesterday, had traveled 1002 miles. During the past week the air-boat has made its usual record in aeronautics, having completed the week by not only maintaining its regular schedule but having made the trips without any delay or engine trouble.

The air-boat will be pressed into service Sunday, Feb. 1, to bring Don C. McMullen, president of the State Anti-saloon League, who will deliver a lecture on that day in this city on the saloon question. Mr. McMullen is anxious to attend Sunday-school in Tampa in the morning of that day, and that will make it too late for him to catch the steamer and be in this city in time to make the lecture. Rather than take an automobile he made arrangements to come over by the air-boat.

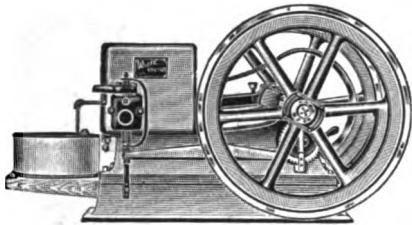
The air-boat has proven a decided success for commercial travel since the inauguration of the line in this city. The eyes of the aeronautical world are upon St. Petersburg, and the air-boat line and many of the prominent aviators of this and foreign countries are watching with interest the results of the air-boat line in this city.—*St. Petersburg Times.*

I find the daily flying machine between St. Petersburg and Tampa, Fla., mentioned above, is really a *hydroplane*. It starts in the water, *alights* in the water, and drops in the water again if any thing goes wrong, and in fact keeps only a few feet above the water on the whole trip of about 30 miles. Notwithstanding, passage is engaged a long way ahead. At present they carry only one passenger at a trip.

Now! Let me send you a WITTE Engine to earn its own cost while you pay for it.



DON'T break your back or waste time doing an engine's work. . Iron and steel are cheaper than muscle; and kerosene oil, cheaper than time. I furnish the power of 10 men's work for 3½c an hour; 30 men's work for less than 80c a day, cost of engine included.



WITTE ENGINES

Kerosene, Gasoline and Gas

Made in sizes 1½, 2, 4, 6, 8, 11, 12, 15, 20, 25, 30 and 40 H.P. Stationary, Portable, Skidded and Sawing Styles. Standard the world over for all shop and farm power uses. Over 27 years ago I made my first engine and gave it my name, and ever since I have kept the active building of every WITTE engine in my own hands. I know every engine I ship, inside and out, and am making lower engine prices than this country has ever seen, while delivering engines that can't be beat.

60 DAYS FREE TRIAL

5-YEAR GUARANTY

Why take chances on a poor, or an unknown engine for any price when the WITTE is so cheap; when it is sold on any easy reasonable payments; and under a stronger money-back guarantee than any manufacturer has ever yet dared to sign?

SEND COUPON for MY BIG OFFER

Let me send you my Free Book, the finest in the whole engine business. Learn the cost of past high prices, and why I can undersell the whole field, and giving unmatched quality. Let me tell you by return mail how easily you can own a WITTE.

Ed. H. Witte, Witte Iron Works Co.

1932 Oakland Avenue, Kansas City, Mo.

Ed. H. Witte, Witte Iron Works Co.
1932 Oakland Avenue, Kansas City, Mo.

Without obligation on my part, send me, by return mail, **Free**, your New Book; and tell me how I can own a WITTE engine so it can earn its own cost while I am paying for it.

Name _____

Address _____

Use KEROSENE Engine Free!

Amazing "DETROIT" Kerosene Engine shipped on 15 days' **FREE** Trial, proves kerosene cheapest, safest, most powerful fuel. If satisfied, pay lowest price ever given on reliable farm engine; if not, pay nothing. No waste, no evaporation, no explosion from coal oil.

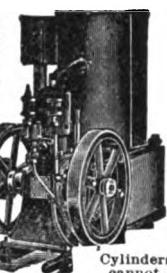
Gasoline GOING UP!

Gasoline is to to 15c higher than coal oil, and still going up. Two pints of coal oil do work of three pints gasoline.

AMAZING "DETROIT"

—only engine running on coal oil successfully; uses alcohol, gasoline and kerosene, too. Starts without cranking. Only three moving parts—no cams, no rockers—no gears—no valves—the utmost in simplicity, power and strength. Mounted on skids. All sizes, 3 to 20 h.p., in stock ready to ship. Engine tested before crating. Comes all ready to run. Pumps, saws, threshes, churns, separates milk, grinds feed, shells corn, runs home electric lighting plant. Prices (stripped) \$29.50 up. Sent any place on 15 days' Free Trial. Don't buy an engine till you investigate money-saving, power-saving "DETROIT," thousands in use. Costs only postal to find out. If you are first in your neighborhood to write, you get Special Introductory price. Write (138)

Detroit Engine Works, 373 Bellevue Ave., Detroit, Mich.

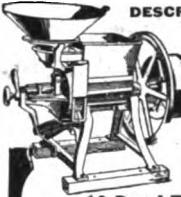


Cylinders cannot carbonize

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The acknowledged standard for high quality and variety of farm machinery for 47 years. 22 styles, half power to 20 h.p. Will grind any grain, separate or mixed, coarse or fine meal, corn cobs and husks. Sold on

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Write for our grinding mill catalogue at once, also for booklet on labor-saving farm machinery at bargain prices.

THE A. W. STRAUB COMPANY

Dept. R, 3748-50 Filbert Street, Philadelphia, Pa.
Dept. G, 3703-11 So. Ashland Av., Chicago, Ill.

A FARMER'S GARDEN

Helps his wife to plan her table in busy times. Saves work and worry, saves buying so much meat, gives better satisfaction to the help. A good garden will be almost impossible in your busy life without proper tools. They cost little and save much hard work.

IRON AGE WHEEL HOES AND DRILLS

will sow, cultivate, ridge, furrow, etc., better than you can with old-fashioned tools and ten times quicker. A woman, boy or girl can do it. Can plant closer and work these hand tools while the horses rest. 48 combinations from which to choose at \$2.50 to \$12. One combined tool will do all of the work.

Ask your dealer to show them and write us for booklet, "Gardening With Modern Tools" and "Iron Age Farm and Garden News," both free.



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MFG CO.
Box 1202
Glenview, N. J.

MASON FENCE CHEAPEST AT BOTH ENDS.
Costs least, lasts longest. Direct from factory for 60 days' trial with money-back guarantee. Our reputation is built into every rod of Mason Fence and Gates. Write today for our **FREE CATALOG**.
Mason Fence Co., Box 88, Leesburg, O.

1914 Chicken Money

Actual profits for wise poultry men and women should reach *remendous figures*. Beef, pork, mutton shortage means extra heavy demands—*top prices*—for poultry and eggs. Will you get your share? Add chickens to your bee business—double your income. Make chicken-raising a *real business*—with right equipment.

CYPHERS INCUBATORS & BROODERS

are World's Standard equipment. Self-ventilating, self regulating. Insure best results—mean big, continuous hatches. Our

Big FREE Poultry Guide

is full of practical information and helpful advice—244 pages—500 illustrations. Write for your copy today. Also for facts about Cyphers Company's Free Bulletin and Personal-Letter Service which supplies continual, practical help in profitable poultry raising. Send name and address now to

Cyphers Incubator Co.
Dept. 60 Buffalo, N.Y.



RAYO Cuts Down Expenses —Does Away With Labor—and Makes \$179⁴⁰

"I am sending my order for another Rayo. The returns from my Rayo last year checked up over 500 chicks that lived to produce. Sold 45 cockerels from the lot from \$2 to \$3.50 each; most of the rest I marketed as broilers at 1 and 2 lbs., at an average of 30c per lb. Figuring it up, I find the Rayo made \$179.40 net for me. The machine took very little of my time, and I can recommend it to everybody who wants to make money in the business." — Roy Best, Waverly, Ohio.

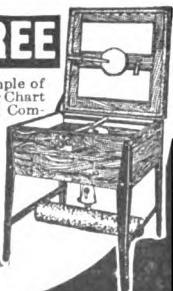
What the RAYO Has Done for Others—It Will Do for You

Get one and beat your neighbors' hatcheries and make more money. The Rayo boosts profits, slashes expense, cuts out the drudgery, overold-style, lamp-on-the-side machines. Requires only 1 filling to hatch. Runs on 1 gal. of oil; others use 5 gals. Runs with little attention; others need constant looking after. The Rayo does all its work automatically. Hundreds of experienced poultrymen will have no other machine. Beginners sure of success. Low, direct, freight prepaid prices to all.

All Three FREE

Money-Making Book and sample of first and only Patent Hatching Chart free to everybody on request. Complete chart and \$1.50 Hydrometer free to all new Rayo purchasers. Ask for Book No. 14. It tells how to Turn Eggs Into Chickens Into Dollars.

Rayo Incubator Co.
1069 S. 13th St.,
Omaha, Nebr.



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Bank the Other Profits

Let me send you the Old Trusty Book and show you how the chickens can help you make two incomes instead of one. This book gave the ideas to half a million others—why not to you?

Old Trusty

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Three or four times more people buy the Old Trusty than any other make. It's because success is sure with the Old Trusty. We guarantee it to do its part or you trade back. Price still less than \$10 and freight prepaid east of Rockies. Only a trifle more delivered on Pacific Coast. Simple, easy to operate, no red tape instructions. First hatch pays you back its cost.

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JOHNSON, Incubator Man
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Highest Average Hatches Every Month in Every State.

My Belle City Now Eight Times World's Champion Hatcher



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You Get Exact Duplicate of Prize Winning Incubators

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Write Me Today. I've Got a Great Money Making Message for Every Poultry Man and Poultry Woman

A postal brings it. It illustrates the Belle City Incubator and Brooder in actual colors—shows what makes the Belle City the 8 Times World's Champion Incubator. It's a record of hatching success, bigger and better than you have ever heard of before. It is the story of thousands of users of my Belle City hatching outfit—told in their own words. Thousands not in contests get 100% perfect hatches. Just say—send me "Hatching Facts." My low price will come with it.

Write me personally,
Jim Rohan, Pres.

Belle City Incubator Co., Box 69, Racine, Wis.

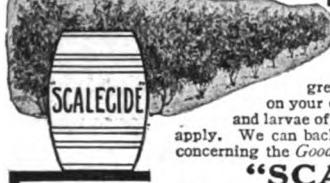


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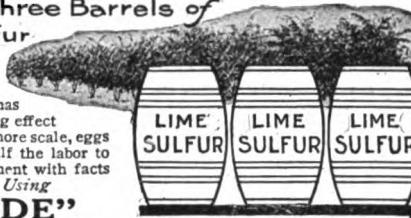
Belle City Incubator Co., Box 69, Racine, Wis.

One Barrel of "Scalecide"

Will Spray as many Trees as Three Barrels of Lime Sulfur.



"Scalecide" has greater invigorating effect on your orchard—kills more scale, eggs and larvae of insects with half the labor to apply. We can back up this statement with facts concerning the *Good Results from Using "SCALECIDE"*.



Send for our illustrated booklet—"Proof of the Pudding". Tells how "Scalecide" will positively destroy San Jose and Cottony Maple Scale, Pear Psylla, Leaf Roller, etc., without injury to the trees. Write today for this FREE book and also our booklet—"Spraying Simplified".

Our Service Department can furnish everything you need for the orchard at prices which save you money. Tell us your needs.

We are World Distributors for **VREELAND'S "ELECTRO" SPRAY CHEMICALS** and **Arsenate of Lead Powder** (33 per cent), which, used wet or dry, has no equal in strength or texture. Avoid imitations. **B. G. PRATT CO., Mfg Chemists** Dept. 6, 50 Church Street, New York City

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**Brown's
Auto Spray**



use these wonderful sprayers to rid fields, fruit trees, gardens of blight, disease and insects—to make all produce big. Auto Spray No. 1—Capacity 4 Gallons. Auto Pop Nozzle throws fine mist to drenching stream. Does not clog. 40 styles and sizes of Hand and Power Outfits. Large sprayers fitted with

Non-Clog Atomic Nozzle

only nozzle that will spray any solution for days without clogging. Fits any make of sprayer. Write for valuable *Spraying Guide Free*.

The E. C. Brown Co., 20 JAY ST., ROCHESTER, N. Y.

DOUBLE SPRAYING RESULTS

by saving half the solution and labor with the **"Kant-Klog" Sprayer**

Nine different sprays from one nozzle—round or flat—square or fine stars and stops instantly. Ten different styles. Mail postal for special offer. Agents wanted.

Rochester Spray Pump Co.
207 Broadway, Rochester, N. Y.



RAIN OR SHINE

Stevenot's Weather Cottage foretells weather changes 8 to 24 hours in advance. This little weather cottage is carefully made with thermometer, modeled stag-head and bird on front of building and birdhouse on roof.

The action is based on scientific principles, and is very accurate.

In bad weather the man, with raised umbrella, comes out, and in fair weather the lady appears. Interesting to the entire family.

Introducing—Size 7 1/2-in. high. Sent parcel post prepaid in U. S. or Canada for \$1. Your money back if dissatisfied.

FRANK H. STEVENOT CO.

Dept. 6, Cooper Union, New York City.

Every cottage fully guaranteed. parcel post prepaid in U. S. or Canada for \$1. Your money back if dissatisfied.

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Makes and burns its own gas and produces a pure white, steady, safe, 100 candle power light. No wick, smoke, dirt, grease or odor.

Lighted instantly. Over 200 styles. Agents wanted. Write for catalog.

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306 E. 5th St., Canton, O.

Makes and burns its own gas and produces a pure white, steady, safe, 100 candle power light. No wick, smoke, dirt, grease or odor.

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40 ACRES sold to Subscribers. Progressive, American and other best everbearers. Get acquainted offer for testing. Send us 10¢ for mailing expense, and we will send you high quality everbearing plants (with \$1 guarantee) then to fruit all summer and fall, or money refunded. Catalogue with history **FREE** if you write today.

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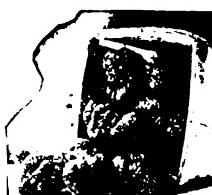
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INVESTIGATE—Best and Cheapest Seeding Known. Alsike Clover and Timothy mixed. Fully 1-3 alsike, a big bargain. Greatest hay and pasture combination grown. Write for Free Sample and 76-page catalog and circulars describing this wonderful grass mixture. Beats anything you can sow and ridiculously cheap. We handle only best tested reseeded seed guaranteed. Write before advance. **A. A. BERRY SEED CO., Box 566 Clarinda, Iowa**

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Small Red, Large Red, White, Yellow Sweet Clover; Alfalfa, Timothy, Blue Grass, Millet, Rape, etc. Good Seed Corn in varieties. Seed leaflet and apiary-supply catalog free.

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60 varieties. Also Small Fruits, Trees, etc. Best rooted stock. Genuine, cheap. 2 sample vines—10c. Descriptive price list free. Lewis Reeser, Box K, Fredericksburg, N. Y.

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By feeding raw bone. Its egg-producing value is four times that of grain. Eggs more fertile, chicks more vigorous, broilers earlier, fowls heavier. Profits larger.

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Best for windbreaks. Protect crops and stock. Keep house and barn warmer—save fuel—save feed. Hill's evergreens are hardy, nursery-grown—low priced. Get Hill's free illustrated evergreen book and list of Great Bargain Offers—from \$4.50 up per Thousand. 56 years experience. World's largest growers. Write.

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Latest Book "Poultry and Poultry" Finest published. 128 pages practical facts, 100 beautiful pictures. Tells how to breed, hatch, feed and market by latest improved methods. All about Summer ducks and 52 other pure-bred varieties. This 50 cent book and lowest price list of best fowls, eggs, incubators, supplies, etc., only 5 cents. **BERRY'S Poultry Farm, Box 97, Clarinda, Iowa**

56 BREEDS Chickens, Ducks, Geese and Turkey. Hardy, northern raised, pure bred, of finest plumage. Fowls, eggs and incubators at lowest prices. America's greatest poultry farm. Send 4c for large, fine 19th Annual Catalog and Poultry Book.

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We announce the installing of complete
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Resulting advantages to UTAH, IDAHO, COLORADO,
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SPECIAL PRICES and LOWER FREIGHT RATES on foundation.
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 Get our prices for working your beeswax into foundation.

Remember we are headquarters for "ROOT" bee supplies and "American" honey-cans.
 1914 cars now arriving. Write for prices. Honey and beeswax
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Superior Honey Co., Ogden, Utah
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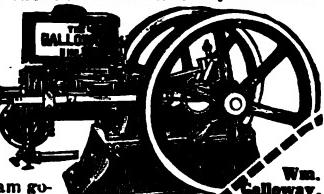
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Buy Direct From the Actual Manufacturer.

Quit paying tribute to "Trusts" and "Combines." Stop paying a lot of unnecessary middlemen's profits. Buy direct at my wholesale factory prices and save \$50 to \$300.

Galloway Engines are made in our own modern factory. They are standard, high-quality, proven engines. Thousands in use. Made in sizes 1½ to 15 H. P.—either stationary or mounted. Sold on 30 Days' Free Trial, backed by 5-Year Guarantee in "black and white" and \$25,000 Legal Bond. You take no risk whatever when you buy on my plan. Money back with freight paid both ways if not satisfied. That's my unequalled offer in a nutshell. Can you beat it?

**Write for
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Do it today! When you write for my catalog I am going to make you a special offer. An offer that will help you to get your engine partly or entirely without cost to you in the end. No soliciting. No canvassing. Just a straight "business proposition." Write.

FREE SERVICE My big corps of engine experts will help you select **BUREAU** and install without cost to you the best size and style engine for your work. No other manufacturer makes you as low prices, as liberal terms, as strong guarantees, or gives you as full protection. Try my plan, and let me prove it to you. Fill in, cut out and mail coupon, or write me a postal for my catalog and special offer. Do it now before you lay this paper down.

Wm. Galloway,
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 765 Galloway St.,
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We also manufacture and sell direct cream separators, manure spreaders and other farm machinery.

Wm. Galloway, President

William Galloway Company, Waterloo, Iowa
 765 Galloway Station

Classified Advertisements

Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the Classified Columns or we will not be responsible for errors.

HONEY AND WAX FOR SALE

See our special sale of honey on advertising page 8 of this issue. THE A. I. ROOT CO., Medina, O.

Choice aster honey of very fine flavor in 60-lb. cans, two cans per case. H. C. LEE, Brooksville, Ky.

Bronzed honey labels, 1000 for 80 cts.; others, 60 cts. per 1000. PEARL CARD CO., Clintonville, Ct.

FOR SALE.—Choice extracted honey in new 60-lb. cans at 9 cts. per lb. J. P. MOORE, Morgan, Ky.

FOR SALE.—Finest quality clover and buckwheat honey in 60-lb. cans. C. J. BALDRIDGE, Homestead Farm, Kendalia, N. Y.

FOR SALE.—No. 1 white comb, \$8.50 per case; No. 2, \$8.20; 24 lbs. to case. WILEY A. LATSHAW, Carlisle, Ind.

FOR SALE.—3000 lbs. of fine extracted honey in 60-lb. cans, 9 cts. per lb. GEORGE RAUCH, Orange Mountain Bee Farm, Guttenberg, N. J.

FOR SALE.—Aster, goldenrod, yellow-top honey-blends, fine quality, 5½ cts. per lb. JOHNSON C. WEAVER, Cochrane, Ala.

FOR SALE.—Several tons of raspberry-milkweed honey (mostly milkweed) in new 60-lb. cans (two in a case), a very fine honey. Write for price. Small sample free. P. W. SOWINSKI, Bellaire, Mich.

FOR SALE.—200 cases of No. 1 and fancy alfalfa and sweet-clover honey in light shipping cases, no glass. Will ship safe by freight. Corrugated pads between sections; \$2.75 per case. R. E. PIFFLEY, 415 Marquette Ave., Albuquerque, N. M.

FOR SALE.—White-clover honey, none better. In 10-lb. pails, six in a case, at \$6.50 per case; 5-lb. pails, 12 in a case, at \$7.00 per case; ½-lb. glass jars, 24 in a case, at \$2.80 per case. Sample, 4 cts. Also in 60-lb. cans, very nice amber honey. HENRY STEWART, Prophetstown, Ill.

FOR SALE.—Blended raspberry, buckwheat, and goldenrod honey; has a thick body and a strong and very rich flavor. Put up for sale in new 60-lb. tin cans. Price \$5.00 a can. Sample by mail, 10 cts., which may be applied on an order for honey. ELMER HUTCHINSON, Pioneer, Mich.

FOR SALE.—No. 1 white comb, \$8.25 per case; No. 2 white, \$2.75; No. 1 fall comb, \$2.75 per case; No. 2 fall, \$2.50 per case. All cases have 24 sections to case, and six cases to carrier. Amber extracted, 8 cts. QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

HONEY AND WAX WANTED

WANTED.—Comb, extracted honey, and beeswax. R. A. BURNETT & CO., 178 So. Water St., Chicago.

WANTED.—Comb honey and beeswax. State what you have and price. J. E. HARRIS, Morristown, Tenn.

WANTED.—Honey, extracted and comb. Will buy or handle on commission. Beeswax—will pay highest price. HILDEETH & SEGELKEN, New York, N. Y.

We pay highest market price for beeswax. Will also work your beeswax into "Weed Process" foundation for you at reasonable price. SUPERIOR HONEY CO., Ogden, Utah, and Idaho Falls, Idaho.

FOR SALE

FOR SALE.—A full line of Root's goods at Root's prices. A. L. HEALY, Mayaguez, Porto Rico.

FOR SALE.—Full line of Root's goods at factory prices. E. M. DUNKEL, Osceola Mills, Pa.

FOR SALE.—Comb-honey supers nailed and painted, cheap. Write H. HETTEL, Marine, Ill.

We now manufacture the famous "Weed Process" comb foundation. Special prices quoted on request. SUPERIOR HONEY CO., Ogden, Utah.

Beekeepers, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap. WHITE MFG. CO., Greenville, Tex.

New crop of extra-fine quality alfalfa seed, \$7.00 per bushel; sacks, 25 cts. extra; also some sweet-clover seed. R. L. SNODGRASS, Augusta, Kan.

FOR SALE.—Empty second-hand cans, two cans to the case; good as new; 25 cts. per case.

C. H. W. WEBER & CO., Cincinnati, Ohio.

FOR SALE.—Better hive for less money. Beekeepers' supplies and standard-bred Italian bees. Write for catalog. A. E. BURDICK, Sunnyside, Wash.

The best of bee goods for the least money. Send for new catalog. Satisfaction guaranteed or money refunded. H. S. DUBY & SON, St. Anne, Ill.

FOR SALE.—Root's goods and Dadant's foundation at factory prices. SPENCER APIARIES CO., Nordhoff, Cal.

FOR SALE.—500 lbs. yellow biennial sweet-clover seed at \$14.00 per bushel of 60 lbs., hulled seed. R. L. SNODGRASS, Harrisburg, Col.

FOR SALE.—Root's goods at factory prices. Fresh stock and prompt accurate service. Let's get acquainted. L. W. CROVATT, Box 184, Savannah, Ga.

FOR SALE.—2½ H. P. Thos. motorcycle in good order. I will take bees and supplies in part or full payment. C. A. GAINES, Versailles, Ky.

1914 cars Root's Bee Supplies and American honey-cans now arriving. For quick shipments order from SUPERIOR HONEY CO., Ogden, Utah, and Idaho Falls, Idaho.

FOR SALE.—Barnes foot-power saw, \$15.00; 25 eight-frame bodies in flat, \$6.00; 25 covers for same, nailed and painted, \$5.00; 25 bottom-boards, nailed and painted, \$5.00; 25 improved covers, ten-frame, in flat, \$6.00; 10 Alvey drone and queen-traps, \$2.00. First check of \$35 takes the lot. ALPLAUS BEE AND POULTRY FARM, Schenectady, N. Y.

The Beekeepers' Review Clubbing List: The Review and Gleanings one year, \$1.50. The Review and American Bee Journal one year, \$1.50. All three for one year only \$2.00. Dealers or those wanting to buy honey kindly ask for a large number of the Review having a list of 100 producers having honey for sale. Address

THE BEEKEEPERS' REVIEW, Northstar, Mich.

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Fertile Virginia Farms, small and large, on railroad, \$15 an acre up. Easy payments. Write for list. Send names of two friends interested in Virginia, and receive our beautiful magazine one year free. F. H. LABAUML, Agr'l Agt. Norfolk & Western Ry., Room 246, N. & W. Bldg., Roanoke, Va.

Men of ambition prosper in the Southeast. Small capital with energy will accomplish wonderful results. Dairy, stock, fruit, or poultry will make you independent. Land sells from \$15 an acre up. Growing season from 7 to 10 months' duration. Modern schools, good highways and churches. "The Southern Field" magazine and farm lists on request. M. V. RICHARDS, Land and Industrial Agent, Room 27, Southern Railway, Washington, D. C.

WANTS AND EXCHANGES

WANTED.—100 colonies of bees.
B. J. HOLDEN, Dorset, Ohio.

I pay cash for used beehives. Any quantity.
JAMES RENWICK, Leroy, Ind.

WANTED.—Southern queens. 200 for May delivery.
F. B. CAVANAGH, Hebron, Ind.

WANTED.—250 colonies of bees, from a location free from disease. Box 3770, GLEANINGS, Medina, O.

Will buy bees. Myself examine, pack, and ship. Write F. A. ALLEN, Philipsburg, Que.

WANTED.—10-inch foundation mill. Must be in good condition and a bargain.
GEORGE SLOANE, Buckholts, Texas.

WANTED.—Bees in lots of 25 to 300 colonies, preferably within 250 miles of Detroit, Mich.
A. W. SMITH, Birmingham, Mich.

WANTED.—Used ten-frame hives or supers with combs. No diseased combs.
G. S. WARNEE, Rt. 3, Box 25, Santa Ana, Cal.

WANTED.—To exchange "Root" bee supplies and "American" honey-cans for honey in five-gallon cans or for beeswax. SUPERIOR HONEY CO., Ogden, Utah, and Idaho Falls, Idaho.

WANTED—50 to 100 colonies of bees and extracting-supers in the vicinity of New York State or Ontario, Can. State price and kind in first letter.
57298 H, 38, care of GLEANINGS, Medina, Ohio.

WANTED.—To furnish every beekeeper within 500 miles of Boise, Idaho, with the best and cheapest bee supplies on the market, *quality considered*. Send me your order or a list of your requirements for 1914. Our catalog and price list will be mailed to you free. Order early and get the discounts.
C. E. SHRIVER, Boise, Idaho.

BEES AND QUEENS

FOR SALE.—50 to 200 colonies, eight-frame, first-class.
E. F. ATWATER, Meridian, Idaho.

Am booking orders now for three-band Italian queens.
J. I. BANKS, Liberty, Tenn.

Pure Italian bees or their hybrids, in L. 10 frames, wired, full foundation, 1 or 100.
Jos. WALRATH, Antioch, Cal.

FOR SALE.—150 colonies or carload of Italian bees in ten-frame Langstroth hives, in Missouri. Address R. F. HOLTERMANN, Brantford, Ont., Can.

Golden-yellow Italian queens my specialty. Untested, \$1.00; tested, \$1.50. Ready April 1. Safe arrival guaranteed.
E. A. SIMMONS, Greenville, Ala.

FOR SALE.—Ten eight and ten frame hives of Italian bees cheap.
EUGENE LUTTRINGER,
249 Market St., Paterson, N. J.

California Golden queens produce the bright workers, equal to any. Tested, \$1.25 to \$2.50; mated, 75 cts.; 12, \$8.00; 50, \$32; 100, \$60.
W. A. BARSTOW & Co., San Jose, Cal.

1914 queens, Moore's strain of leather-colored Italians in April at 75 cts. Write us for prices on nuclei. Address
OGDEN BEE AND HONEY CO., Ogden, Utah.

FOR SALE.—Golden Italian queens that produce golden bees; for gentleness and honey-gathering they are equal to any. Every queen guaranteed. Price \$1.00; 6 for \$5.00.
Wm. S. BARNETT, Barnett's, Va.

FOR SALE.—75 colonies Italian bees in ten-frame dovetailed hives, first-class condition; warranted free from disease: \$6.50 per colony.
N. P. ANDERSON, Eden Prairie, Minn.

Italian bees in pound packages and on comb our specialty; 30-page catalog giving beginners' outfit free; also queens.
THE DEROT TAYLOR CO., Lyons, N. Y.

FOR SALE.—Italian queens, bees by pound. Descriptive list free. Apiaries under State inspection. Leaflets, "How to Introduce Queens," 15 cts.; "How to Increase," 15 cts.; both 25 cts.
E. E. MOTT, Glenwood, Mich.

Golden Italian queens that produce golden bees, the brightest kind, gentle, and as good honey-gatherers as can be found. Each: \$1.00; six, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.
J. B. BROCKWELL, Malvern Hill, Va.

Phelps' Goldens combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; tested, \$2.00 and \$3.00; breeders, \$5.00 and \$10.00.
C. W. PHelps & SON,
3 Wilcox St., Binghamton, N. Y.

FOR SALE.—Several yards of bees on five years' time and easy terms of payment. No disease, and best of locations. All we ask is that you help us work these bees for several months this year to show your ability to manage them. Further particulars on request.
SPENCER APIARIES CO., Nordhoff, Cal.

Queens bred from Moore's and Doolittle's best Italian stock; untested, 60 cts. each; \$6.60 per doz.; \$50.00 per 100. Tested, 90 cts. each, \$10.20 per doz.; \$80.00 per 100. Delivery guaranteed. Book orders now. Nuclei, any quantity, two-frame, \$1.50; three-frame, \$2.00. Add price of above queens wanted.
SPENCER APIARIES, Nordhoff, Cal.

Goldens and three-band Italians, ready March 1. They have been bred for three points—prolificness, gentleness, and honey-gathering qualities. Select untested, each, 75 cts.; 6, \$4.25; 12, \$8.25; 50, \$32.50; 100, \$60.00. Tested, \$1.50; select tested, \$2.00; three-banded breeders, \$4.00; golden breeders, \$5.00.
GARDEN CITY APIARY CO.,
Rt 3, Box 86, San Jose, Cal.

FOR SALE.—Three-banded Italian queens, nuclei, and bees by the pound. March 15 to June 15, untested queens, each, 75 cts.; 6, \$4.25; 12, \$8.25; tested, each, \$1.25; 6, \$7.25; 12, \$14.00. Bees by pound: 1-lb. package, \$1.25; 6, \$7.25; 12, \$14.00. If you wish queen with bees by the pound add price of queen. Write for circular and complete price list.
BROWN & BERRY, Hayneville, Ala.

FOR SALE.—California Italian queens, Goldens and Three-banders by return mail after March 15; select untested, 75 cts.; 12, \$8.00; tested, \$1.00; breeders, \$3.00. Bees by the pound a specialty, ready April 1; 1 lb., \$1.25; 2 lbs., \$2.25; large lots, less. Booking orders now. Deliveries and satisfaction guaranteed. Correspondence solicited. Circular free.
J. E. WING, 155 Schieff Ave., San Jose, Cal.

GOOD QUEENS.—Good queens are a real necessity in any apiary if best results are to be expected. The old leather-colored three-band Italians have proven themselves to be the best general-purpose bees extant. These I can supply in any quantity you may wish. Untested, \$1.00 each; \$4.25 for six; \$8.00 per dozen. Safe arrival and satisfaction. All orders will have prompt attention.
E. J. ATCHLEY, Bloomington, Cal.

FOR SALE.—Early swarms at fall prices; $\frac{1}{2}$ -lb. bees, \$1.00; 1 lb. bees, \$1.50. Add price of queen if wanted. Untested three-band Italian queens, 75 cts. each; tested Italian queens, \$1.25 each. These are bred from best honey-gathering strain. No disease. Safe arrival and satisfaction guaranteed. This is undoubtedly the best way for Northern honey-producers to increase and improve their stock. Delivery begins about April 5. Capacity, 40 swarms per day.
W. D. ACHORD, Fitzpatrick, Ala.

I will sell and ship some bees from my 400 colonies from northern Louisiana in April and May. Two-comb nuclei, \$2.00; 3-comb, \$2.50. One pound bees in Root cages, \$1.50; two pounds, \$2.50. Queens with bees, 75 cts. extra; young untested, or last season's tested, ordered separate, \$1.00 each.

H. C. AHLES, West Bend, Wis.

EARLY QUEENS.—Those who desire early queens can be supplied by sending orders to us. Only three-band Italians stand the severe test against diseases, and our bees are clean. Untested queens, \$1.00 each; \$4.25 for six; \$8.00 per dozen. Always safe arrival and satisfaction to everybody. If you desire queens in large lots early, better let us book you as soon as convenient, and money can be sent when queens are wanted. Your check is good, or any way you wish to remit.

THE RIALTO HONEY CO., Box 73, Rialto, Cal.

Many men of many minds; but the minds of practical beekeepers are turned toward the old reliable three-band Italians. We have them in their purity, new blood, new importation. Untested queens from March to June, \$1.00 each; \$4.25 for six, or \$8.00 per dozen; safe arrival and satisfaction to all customers. Write for prices on large quantities. You do not have to return dead queens to us—just state it so on a postal card, and queens dead on arrival will be replaced promptly.

THE GOLDEN RULE BEE CO., Riverside, Cal.

POULTRY

Rhode Island Reds. Strong baby chicks for sale. Write me. E. O. WALTZ, Medina, Ohio.

Eggs for hatching, S. C. White Orpingtons. Mating list free. JAMES R. LAMPSON, box B, Medina, O.

Eggs for sale. Rhode Island Reds and Barred Rocks, \$1.00 per 15. H. J. RODENBERG, Rt. 4, Metropolis, Ill.

Stock and eggs for sale, all leading varieties; also geese and Belgian hares. Catalog free. LEVI STUMB, Richland Center, Pa.

Pure-bred Indian Runner ducks, snow-white eggs, 15 for \$1.00; 100 for \$6.00. J. C. WHEELER, 921 Austin Boul., Oak Park, Ill.

Silver Campines are money-makers. I offer first-class stock, \$10; \$12 per trio. ELMER W. PALMER, Catskill, N. Y.

Pure white and fawn and white Indian Runners, Pekins. Catalog free. White-egg strains. THE DEROY TAYLOR CO., Lyons, N. Y.

LEGHORNS.—Eggs for hatching. S. C. W. Leghorns, \$5.00 per 100; \$1.00 per 15. Send for catalog. WOODWORTH FARM, Wilton, Ct.

Eggs.—20 for \$1.00; leading varieties prize poultry, pigeons, hares, etc. Booklet free. Large illustrated catalog, 10 cts. F. G. WILE, Telford, Pa.

Corning strain S. C. White Leghorn eggs and day-old chicks for sale. Also a few lusty cockerels. This strain lays, weighs, and pays. F. J. ARMSTRONG, Nevada, Ohio.

S. C. White Leghorn, 15 eggs, \$1.25. Day-old chicks, 15 cts. each. Buff Wyandott, utility-stock eggs, per setting of 15, \$2.00. Day-old chicks, 20 cts. each. JOHN RIEDER, Medina, Ohio.

Rhode Island Reds, Partridge Wyandottes, Mottled Anconas, White Leghorns, White Cornish; Pekin, Rouen, Fawn and White Indian Runner ducks; also pure-white Indian Runners and White Call ducks. Line-bred stock for sale. Eggs to set. Prices reasonable for high-class stock.

L. G. CARY, Trimble, Ohio.

MISCELLANEOUS

Choice maple syrup direct from producer. C. C. PARKHURST, Rt. 1, Phalanx Station, Ohio.

Belgian hares, breeders, and youngsters. List free. HARVEY L. STUMB, Quakertown, Pa.

Pigeons! Pigeons! Thousands, all breeds; lowest prices; satisfied customers everywhere. Start with our \$\$\$-making Jumbo Squab-breeders. Large, free, instructive, illustrated matter.

PROVIDENCE SQUAB CO., Providence, R. I.

HELP WANTED

WANTED.—Strong, experienced help in apiary. Please give full particulars in first letter.

W. D. WRIGHT, Altamont, N. Y.

WANTED.—Reliable man of good habits to work with bees and on small farm for season of 1914. Give age, experience, and wages.

FRANK KITTINGER, Caledonia, Wis.

WANTED.—A good young man for the season of 1914 to work with bees. State salary, experience, age, etc., in first letter.

FRANK C. ALEXANDER, Delanson, N. Y.

WANTED.—Another young man of good habits, who is interested, to work with bees and on farm for coming season. Have nearly 1000 colonies.

N. L. STEVENS, Venice Center, N. Y.

WANTED.—Man (married preferred) experienced in queen-raising; employment by the year on a salary and percentage.

OGDEN BEE AND HONEY CO., Ogden, Utah.

WANTED.—Steady single man to work on six-acre fruit-farm, and help with 300 colonies of bees. State age, experience, and wages expected in first letter, with references. D. L. WOODWARD, Clarksville, N. Y.

WANTED.—A young man of good character to work in our honey-producing yards and queen-rearing department. Please state experience and wages expected in first letter. We furnish board.

BROWN & BERRY, Hayneville, Ala.

I could take two or three young men of good clean habits to learn beekeeping during the season of 1914; crop last year, 80,000 lbs. Board free, and something more if we both do well.

K. F. HOLTERMANN, Brantford, Ont., Canada.

WANTED.—Single young man with some experience for season of 1914, beginning about the middle of May; must be strictly temperate, industrious, and willing to work hard in the busy season. State age, experience, and wages expected, with board supplied, in first letter. Give references.

EWART McEVoy, Woodburn, Ontario, Can.

Exceptional opportunity.—Shares or share and salary, with prospect of future interest, to right man; operating 150 to 300 hives of bees in a location where both clover and heavy autumn flows are secured by using motor truck. Sure fall location. State your qualifications and experience in first letter.

F. B. CAVANAGH, Hebron, Ind.

SITUATION WANTED

WANTED.—Work in the bee business. I am a thoroughly experienced beekeeper, having worked with bees for 12 years; produced comb and extracted honey; familiar with disease and queen-rearing; also with the use of autos and trucks. I am 28 years old and single; no bad habits. References furnished. State wages in first letter. E. A. KNEMEYER,

218 E. Mt. Ave., Fort Collins, Col.

BEEKEEPERS' DIRECTORY

If you need queens by return mail send to J. W. K. SHAW & CO., Loreauville, Iberia Parish, La.

Nutmeg Italian queens, leather color, after June 1, \$1.00. A. W. YATES, Hartford, Ct.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York.

QUEENS.—Improved red-clover Italians bred for business. June 1 to Nov. 15, untested queens, 75¢ each; dozen, \$8.00; select, \$1.00 each; dozen, \$10; tested queens, \$1.25 each; dozen, \$12.00. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Boyd, Ky.

Quirin's famous improved Italian queens, nuclei, colonies, and bees by the pound, ready in May. Our stock is northern-bred and hardy; five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices, send for circular.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

SPECIAL NOTICES BY OUR BUSINESS MANAGER

The supply of J. E. Hand's book, "Hand's System of Swarm Control," or "Beekeeping by Twentieth Century Methods," is entirely exhausted. It has been decided not to publish another edition.

ALSIKE-CLOVER SEED.

We are supplied with good alsike-clover seed which we offer at 25 cts. per lb.; \$3.50 per peck; \$6.50 for half bushel; \$12.25 per bushel; 2 bushels, \$24.00, bags included, and shipping charges extra.

MAMMOTH OR PEAVINE CLOVER.

We have for sale a choice lot of mammoth or peavine clover seed, which we offer at 22 cts. per lb.; \$3.00 per peck; \$5.50 per half bushel; \$10.50 per bushel; \$20.00 for 2 bushels, bags included.

SWEET-CLOVER SEED.

The lot of mixed white and yellow unhulled seed offered in late issues has all been sold. We have a good supply of unhulled yellow biennial in stock here, at Chicago, and Des Moines; have a good prospect of replenishing our stock of hulled yellow biennial from a grower in Nebraska. We are temporarily sold out of white unhulled, and have a small stock of the hulled. We have more of both engaged, some of it on the way here, and will try to take prompt care of orders we may receive at prices last published in last issue.

BEESWAX.

Since our last issue went to press we have secured a more liberal supply of beeswax; and if it continues to come in good volume at no higher price we shall be able to continue present prices on comb foundation, although the margin is very close. Should the price of wax go higher we will be compelled to advance the price of foundation.

We are paying at present 32 cts. cash, 34 in trade, for average wax delivered here, and a premium for extra choice quality. Rates for making up wax into foundation quoted on application.

"ANSWERS TO 150 QUESTIONS COMMONLY ASKED ON BEES"

is the title of a new booklet in the press of The A. I. Root Co. The preliminary announcement of it in our general catalog has made an enormous demand for it already; but we have decided to send it to all subscribers who send in \$1.00 before their subscriptions expire, free. The booklet contains 71 pages, and is packed full of useful information. It has an elaborate index so that one can locate just the precise information he is seeking. These answers are taken largely from letters from our subscribers, and cover a very wide field. Some of the information given is not comprised in our text-books. The book will be ready to send out by March 1st.

SECOND-HAND FOUNDATION MILLS.

We have to offer the following list of foundation machines which have been used, but are in fair condition. In many cases they will answer as well as a new machine where you have only a moderate output. Send for samples of any mill in the list which may interest you.

No. 0189, 2 1/2 x 6 hexagonal thin-super mill, in very good condition. Price \$14.00.

No. 0140, 2 1/2 x 6 hexagonal thin-super mill, in very good condition. Price \$14.00.

No. 0142, 2 1/2 x 6 hexagonal thin-super mill, in fair shape. Price \$10.00.

No. 0158, 2 1/2 x 6 hexagonal thin-super mill, in very good condition. Price \$14.00.

No. 0154, 2 1/2 x 6 hexagonal thin-super mill, in very good condition. Price \$14.00.

No. 0156, 2 1/2 x 6 extra-thin-super mill, fair. Price \$10.00.

No. 0165, 2 1/2 x 6 hexagonal extra-thin-super mill in fair condition. Price \$12.00.

No. 0176, 2 1/2 x 6 extra-thin-super mill in fair condition. Price \$12.00.

No. 0180, 2 1/2 x 6 hexagonal thin-super mill, in fair condition. Price \$10.00.

No. 0183, 2 1/2 x 6 hexagonal thin-super mill, very good condition. Price \$14.00.

No. 0188, 2 x 10 round-cell medium-brood mill, in good condition. Price \$14.00.

No. 0182, 2 1/2 x 12 round-cell medium-brood mill in very good condition. Price \$20.00.

No. 0207, 2 1/2 x 6 hexagonal cell thin-super Dumb-ham mill in good condition. Price \$10.00.

No. 0210, 2x 10 round-cell medium brood mill in extra-good condition. Price \$16.00.

SPECIAL NOTICES

A. I. Root

THE FLORIDA (WEEKLY) GROWER.

There are several reasons why I look over the above with special interest. First, it treats of conditions near our Florida home. The editor also has footnotes to many of the articles, adding much to their value, and he tells the truth to those in the North who want to come here. Last, but not least, he is generally well posted as to what can be and what can not be grown successfully in this region. The paper is \$1.50 per year—306 1/2 Cass St., Tampa, Florida.

"HOW TO KEEP WELL AND LIVE LONG."

I have for the first time gotten hold of a 48-page pamphlet (sent out by the *Practical Farmer* people), containing testimonials from people who have gained health by reading Terry's book with the above title. The pamphlet is one of my "happy surprises." It is itself an exceedingly valuable little book, and yet, as I take it, it is given away as an advertisement of the *Farmer* and Terry's book. By all means send for it if you haven't it already. This pamphlet alone will prove, I am sure, a great boon to a suffering world. Address The Farmer Co., 18th and Market Sts., Philadelphia, Pa.

A QUEEN-BEE FROM THE KING OF ITALY.

A. H. Fralick (Homer, Minn.) and wife have just paid us a brief visit. Friend F. is not only an extensive beekeeper, but claims to have a queen sent to a neighbor of his by the King of Italy. If the king has really taken to beekeeping, may he not see fit to help us in preserving and getting hold of the best strains of Italian bees? Are there any better bees on the face of the earth than the Italians? I replied that, so far as I knew, the A. I. Root Co. gave the best strains of Italian bees the preference. Friend F. has just purchased property in our immediate neighborhood.

Convention Notices

The Northern Michigan branch of the National Beekeepers' Association meets at Petoskey, Tuesday and Wednesday, March 10, 11. A good program will be prepared, and premiums offered for display of

comb and extracted honey and wax. The session will be held at City Hall; headquarters at Cushman House. IREA D. BARTLETT, Sec. East Jordan, Mich., Feb. 5.

Feb. 28, the last Monday in this month, we shall introduce a new feature in our association—namely, a banquet after the meeting, to all present. Toasts and speeches will rule. We concluded to give two banquets each year—one in February and one in August, election of officers. We are considering a fine coat-lapel button, blue background with golden queen in center, gold rim, and inscription in gold letters, "We Sweeten Others" around the queen. Sweet-clover seed is also to be distributed among the members.

CINCINNATI, O., Feb. 2. HENRY REDDEBT, Sec.

Program of the tenth annual convention of the Pennsylvania State Beekeepers' Association, to be held in the capitol building, Harrisburg, Feb. 20 and 21.

FRIDAY, 2 P. M.

Roll-call. Reading of minutes. Report of Secretary H. C. Klinger, Liverpool, Pa. "Comb and Extracted Honey in the Same Apiary," H. P. Faucett, Brandywine Summit. "Economical Increase," Harold Hornor, Philadelphia, and F. G. Fox, Pipersville. Discussion. Business.

7:30 P. M.

Address of welcome, Hon. N. B. Critchfield, Secretary of Agriculture. "Discouragement," Rev. C. Fassold, Williamstown. "Experiences of an Inspector," Geo. H. Rea, Reynoldsville. President's Annual Address, Dr. H. A. Surface, Economic Zoologist.

SATURDAY, 9 A. M.

Reports of the inspectors. Election of officers. "The Coons Hive and Honey Production," R. L. Coons, Coudersport. "Two Essentials in Honey Production," Dr. E. F. Phillips, Washington, D. C. "Stung," Hon. E. A. Weimer, Lebanon. Discussion.

1:30 P. M.

Business. "Queen-rearing for the Beginner," Isaac F. Tillingshast, Factoryville. "House Apiaries," F. J. Strittmatter, Ebensburg. "Treating Foul Brood in the Fall," J. O. Buseman, Philadelphia. "Soil, Fertility, and the Production of Honey," Dr. H. A. Surface.

Everybody welcome. Bring your neighbor along. Beekeepers and dealers are requested to make displays of honey and supplies.

H. C. KLINGER, Sec.

The annual meeting of the Southeastern Minnesota and Western Wisconsin Beekeepers' Association will be held in the Court-house, Winona, Minn., on Tuesday and Wednesday, February 24-25, 1914.

TUESDAY.

10 A. M. Social hour. Reading minutes. Reports of Secretary and Treasurer. Report of the State Bee Inspector, J. Alf. Holmberg, St. Paul.

1:30 P. M. "Why My Bees Produced 4000 lbs. of Honey in 1913," L. A. Stickney, Minnesota City. "Wintering Bees," Wm. Dotterwich, Winona, Minn. Address, Prof. Francis Jager, State University, Minn. "Honey-producing Plants of Minnesota," Prof. Holzinger, State Normal School, Winona.

WEDNESDAY.

9 A. M. President's address, W. K. Bates, Stockton. Report on State Beekeepers' Meeting, L. A. Stickney, Minnesota City. "Difficulties Found the Past Year," W. G. Schultz, Elgin. Paper, E. C. Cornwell, Minnesota City. Discussions on the above topics.

1:30 P. M. "What I Think of a State Honey Exchange," Fred Oech, Wilson, Minn. "Some Experiences with foul Brood," F. L. Clow, Dressbach, Minn. Question-box. Business session. Annual picnic. Election of officers, etc.

All beekeepers and those interested in bees are invited to attend the meetings and take part in the discussions whether members of the association or not.

For twenty-five cents you become a member of this association. If you can not attend the meeting, send twenty-five cents to the Secretary and you will receive receipt for the same. If convenient bring with you a small sample of extracted or comb honey or a useful tool or fixture used about your apiary.

Winona, Minn. OZRO S. HOLLAND, Sec.

This Washer Must Pay for Itself

A MAN tried to sell me a horse once. He said it was a fine horse, and had nothing the matter with it. I wanted a fine horse. But I didn't know any thing about horses much. And I didn't know the man very well either.

So I told him I wanted to try the horse for a month. He said "All right, but pay me first, and I'll give you back your money if the horse isn't all right."

Well, I didn't like that. I was afraid the horse wasn't "all right," and that I might have to whistle for my money if I once parted with it. So I didn't buy the horse although I wanted it badly. Now this set me thinking.

You see I make Washing Machines—the "1900 Gravity" Washer.

And I said to myself, lots of people may think about my Washing Machine as I thought about

the horse, and about the man who owed it.

But I'd never know, because they wouldn't write and tell me. You see I sell my Washing Machines by mail. I have sold over half a million that way. So, thought I, it is only fair enough to let people try my Washing Machines for a month, before they pay for them, just as I wanted to try the horse.

Now, I know what our "1900 Gravity" Washer will do. I know it will wash the clothes, without wearing or tearing them, in less than half the time they can be washed by hand or by any other machine.

I know it will wash a tubful of very dirty clothes in Six Minutes. I know no other machine ever invented can do that, without wearing out the clothes.

Our "1900 Gravity" Washer does the work so easily that a child can run it almost as well as a strong woman, and it doesn't wear the clothes, fray the edges, nor break buttons the way all other machines do.

It just drives soapy water clear through the fibers of the clothes like a force pump might.

So, said I to myself, I will do with my "1900 Gravity" Washer what I wanted the man to do with the horse. Only I won't wait for people to ask me. I'll offer first, and I'll make good the offer every time.

Let me send you a "1900 Gravity" Washer on a month's free trial. I'll pay the freight out of my own pocket, and if you don't want the machine after you've used it a month, I'll take it back and pay the freight too. Surely that is fair enough, isn't it?

Doesn't it prove that the "1900 Gravity" Washer must be all that I say it is?

And you can pay me out of what it saves for you. It will save its whole cost in a few months, in wear and tear on the clothes alone. And then it will save 50 cents to 75 cents a week over that in washwoman's wages. If you keep the machine after the month's trial, I'll let you pay for it out of what it saves you. If it saves you 60 cents a week, send me 50 cents a week till paid for. I'll take that cheerfully, and I'll wait for my money until the machine itself earns the balance.

Drop me a line to-day, and let me send you a book about the "1900 Gravity" Washer that washes clothes in six minutes.

Address me this way—H. L. Barker, 1127 Court Street, Binghamton, N. Y. If you live in Canada, address 1900 Washer Co., 355 Yonge St., Toronto, Ontario.



EARLY-ORDER CASH DISCOUNTS

**Apply Here just as they
do at the Factory**

As Southwestern distributors of ROOT'S BEEKEEPERS' SUPPLIES, we are very glad to make this first announcement of a special discount for early orders, accompanied by cash, to our beekeeping friends throughout this territory.

We give exactly the same discount that is granted by the manufacturers of these famous goods, and the prices in our special catalog are the same as their own. There is an extra saving for you in ordering from us—FREIGHT. Better give this your special attention before ordering from elsewhere.

THE CASH DISCOUNT ON EARLY ORDERS PLACED IN FEBRUARY IS 2 PER CENT.

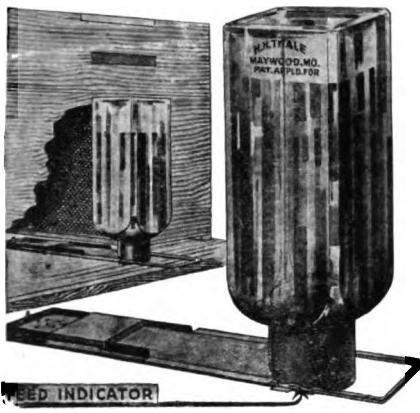
This applies to every thing in the way of beekeepers' supplies except a few special articles. On large general orders we will allow the discount on some of the excepted articles, not exceeding ten to twenty per cent of the entire order.

REMEMBER WE MANUFACTURE THE FAMOUS WEED PROCESS COMB FOUNDATION.

We have a large demand for this product, and are turning out comb foundaion of the finest quality. Include what you will need for the opening of next season in your early order. Shipment may be held subject to your convenience if desired; but get your order in now and save 2 per cent.

**Toepperwein & Mayfield Co.
San Antonio, Texas**

Thale's Regulative Vacuum Bee-Feeder!



The New Model on Ten Days' FREE TRIAL
I will ship you as many feeders as you may want on ten days' free trial in your own apary; and if they do not work as represented you may return them at my expense, and your money will be refunded. Send for free trial offer. Address FREE TRIAL, Dept. G 104.

MOST PERFECT STIMULATIVE FEEDER ever constructed. It feeds inside underneath the cluster, and will fit any hive made. To fill feeder lift off empty bottle and set on full one. It is so regulated by the slide from the outside of the hive to feed any amount you may want the bees to have in one day. If you set it on one-half pint in one day the bottle of feed will run four days and nights and can be increased or decreased from the outside of the hive without disturbing the bees or moving the feeder. It feeds continuously, thereby imitating a natural honey flow, and will produce more brood with less cost than any other feeder made, and can be filled any time of the day without causing robbing or excitement. Queen-breeders especially can not afford to be without this feeder, as hundreds of valuable queen-cells are torn down and destroyed by the bees annually on account of improper and poor methods of feeding. With this feeder you control the flow; it feeds continuously, and will produce more cells, better cells, and the bees will not destroy any. Try this feeder. It will more than pay you. Send for feeder circular and bee-supply catalog. I carry a full line of Lewis Beeware and Dadant's Foundation. One of my Vacuum Bee Feeders complete with two bottles FREE with every ten-dollar order. Send me a list of your wants—it is no trouble to answer letters.

TERMS, CASH WITH ORDER

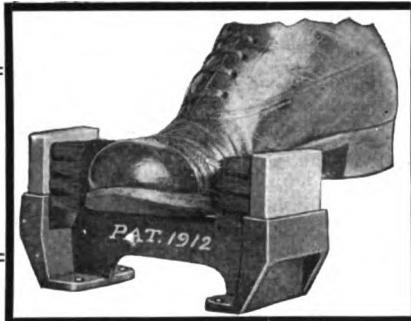
Sample Feeder, with 2 bottles complete, mail postpaid,	55c
Ten Feeders, complete with 1 bottle, freight or exp., each,	35c
All orders over ten feeders only, each,	30c
Extra bottles with cork valve, each	10c

H. H. THALE, INVENTOR AND MANUFACTURER BOX 625, MAYWOOD, MISSOURI

Eastern Buyers Send Orders to Earl M. Nichols, Lyonsville, Mass.

Callender Shoe-scraper

Every House-keeper will want one



A glance at the Illustration will tell you why.

Combination Scraper and Brush

Scrapes the mud from the sole of the shoe and cleans the sides at the same time. Every housewife should have one. It will reduce her work in saving the time necessary to clean rugs and floors, which otherwise would be tracked with dust and dirt from the street.

It is made of the finest material; no screws to rust; heavily japanned. Brushes remain stationary. It is so simple that a child can change the brushes.

Every household needs one or more.

Premium Offer: We will send one of these Callender Shoe-scrapers as premium to any reader who sends us TWO NEW subscriptions to GLEANINGS IN BEE CULTURE for six months at the rate of 25 cents each.

Postage on Canadian subscriptions 15 cents additional for each trial subscription for six months.

The A. I. Root Company, Medina, Ohio



No. 28

Planet Jr.
Combined
Hill and Drill
Seeder, Wheel
Hoe, Cultivator,
Rake and
Plow



No. 25

Planet Jr.
Combined
Hill and Drill
Seeder, Double
Wheel Hoe, Culti-
vator and
Plow

The newest and most accurate Planet Jr seeder. Sows all garden seeds in hills or drills, opens the furrow, covers, rolls down, and marks next row all at once. Has steel frame and handles, and complete set of attachments. Light enough for woman's use.

A capital implement for large-scale gardening especially. It has a steel frame and complete seeding and cultivating attachments. The hoes run close to row without danger to leaves or roots. Two acres a day can be worked with this tool.

Planet Jr. SCIENTIFIC CULTIVATION

Get away from useless drudgery and old-time wasteful cultivating methods in your family garden and on your farm. Use the Planet Jr and do the work of 3 to 6 men, better, quicker, cheaper. Planet Jrs are light, strong, lasting. \$2 to \$100. Fully guaranteed.

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Cultivator and
Pulverizer



No. 10

Planet Jr Horse Hoe,
Cultivator
and Hiller

An invaluable tool in the market-garden, truck and strawberry patches. Has new steel wheel which prevents clogging. Its 12 chisel-shaped teeth cut out all weeds, stir and mellow the soil and leave the ground in the finest condition without throwing dirt on plants.



No. 30

Planet Jr
Single Wheel
Hoe, Cultivator,
Plow,
Rake and
Marker

Does more and better work than any other horse-hoe ever invented. It is light and easily handled, yet unusually strong. Has new steel wheel which prevents clogging with trash. Quickly adjusted to rows up to $3\frac{1}{2}$ feet apart. Vine-turner attachment is great for many crops at last working.

A new Planet Jr Single Wheel Hoe that is light, strong and practically indestructible—the frame and handles are steel. It is completely equipped for plowing, hoeing, cultivating and raking. The marking attachment insures rapid, economical wheel-hoeing.

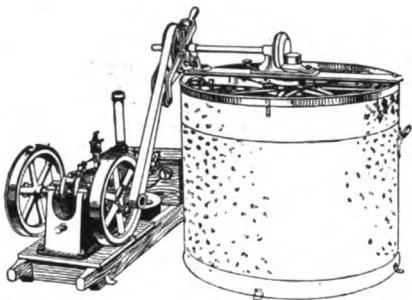
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OF CALIFORNIA.

Gleanings in Bee Culture



VOL XLII. MAR. 1, 1914, NO. 5.

ROOT'S POWER EXTRACTORS for the LARGE PRODUCER for 1914



The late W. Z. Hutchinson, when asked as to what would combine best with beekeeping, said, "The best thing to go with bees is—more bees." If more bees is the slogan, then the best equipment should be installed. This would be an outfit that will handle advantageously the product of 200 or more colonies with a minimum of time and labor.

POWER EXTRACTING OUTFIT.—The value of this cannot be gauged entirely by the number of days it is used during the season. It should be remembered that it displaces a large amount of extra equipment in the way of extra supers and combs. The extracting must be done quickly in order to hold in check the swarming that is sure to follow unless room is given when needed. The amount thus saved, including reduction of labor and time, will materially reduce cost of production.

ENGINE.—This should not be selected without due examination. There are certain types of gasoline-engines that are not fitted for driving honey-extractors. Machines requiring to be started and stopped an endless number of times during the day require an engine of special construction, and the beekeeper will do well to investigate thoroughly these points before purchasing. Our new engines, the "BUSY BEE," are selected for and are exactly adapted for just this kind of work.

CAPPING-MELTER.—No extracting house is complete without one. We have a number of styles and sizes to select from. Illustrations of all these will be found in our large catalog. The smaller sizes are intended to be used with wax-presses, which also are shown.

HONEY-KNIVES.—For rapid and easy work our new steam honey-knives can't be beat. Extra tubing is furnished when ordered. Send for our new 34-page book, "Power Honey-extractors," describing these fully.

These equipments are supplied by various dealers throughout the country. Information as to nearest dealer on request.

The A. I. Root Co., Medina, Ohio



"Falcon" Bee Supplies. . . .

. . . . Every Thing for the Beekeeper

Take advantage of the early-order discount, send us your list of requirements, and we will quote you our very best factory prices and discounts.

Having recently constructed an eight-car-capacity kiln, and having enlarged our power plant, we shall be able to handle your orders to the best advantage.

"Falcon" Supplies speak for themselves. Don't delay your order, but take advantage of this opportunity and let us ship the goods at your convenience.

Send for our foundation samples and Red Catalog, postpaid.

W. T. Falconer Manufacturing Company, Falconer, New York
Where the good beehives come from

"ROOT" "PEIRCE" "ZANESVILLE"

Three words that unlock the possibilities of successful beekeeping.

"ROOT QUALITY" has always represented the acme of perfection in every thing pertaining to bees.

"PEIRCE SERVICE" is fast becoming a synonym for promptness coupled with courtesy and fairness.

ZANESVILLE—the metropolis of eastern and southern Ohio—is the logical distributing-point for the beekeepers of Ohio, West Virginia, and western Pennsylvania; and those more remote can be served with a large degree of satisfaction on account of the superior shipping facilities of this city.

Our 1914 Catalog of Beekeepers' Supplies and Introduction to Beekeeping is now being sent to those on our mailing-list. If you have not already received or do not receive it soon, a postal-card request will insure your receiving it without delay.

Prospects for the coming season are unusually bright, and both prudence and economy would suggest the early placing of your order.

E. W. Peirce, Zanesville, O.

Airdome Bldg., South Sixth St.

It turns over an important "new leaf" beginning with the January number.

The Guide to Nature Several New Features

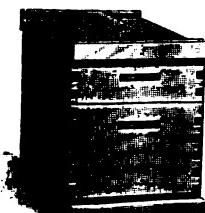
"Birds in the Bush," a department edited by Edmund J. Sawyer, with illustrations from original drawings by this talented artist-ornithologist.

"The Fun of Seeing Things," a department for young folks, edited by Edward F. Bigelow, succeeding his well-known work as editor of the "Nature and Science" department of "St. Nicholas" for more than fourteen years.

This new department will be really new. It will not be "schooly," not "nature study," not to induce parents and educators to say, "It is good for the children," but it will appeal directly to the young folks themselves and will help them to enjoy the natural objects that surround them. It will be true to its name.

Subscription \$1.00 a year; single copy 10c.
To new subscribers, four months trial for
25c. Address (and make check or money
order payable to)

**The Agassiz Association,
ARCADIA :
Sound Beach, Connecticut**



EARLY-ORDER DISCOUNTS WILL Pay You to Buy Bee Supplies Now

29 years' experience in making everything for the beekeeper. A large factory specially equipped for the purpose ensures goods of highest quality. . . . Write for our illustrated catalog and discounts today.

LEAHY MFG. CO., . 95 Sixth St., . Higginsville, Missouri

HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

NATIONAL BEEKEEPERS' ASSOCIATION GRADING RULES

Adopted at Cincinnati, Feb. 18, 1913.

Sections of comb honey are to be graded: First, as to finish; second, as to color of honey; and third, as to weight. The sections of honey in any given case are to be so nearly alike in these three respects that any section shall be representative of the contents of the case.

I. FINISH:

1. *Extra Fancy*.—Sections to be evenly filled, comb firmly attached to the four sides, the sections to be free from propolis or other pronounced stain, comb and cappings white, and not more than six unsealed cells on either side.

2. *Fancy*.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white, and not more than six unsealed cells on either side exclusive of the outside row.

3. *No. 1*.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white to slightly off color, and not more than 40 unsealed cells, exclusive of the outside row.

4. *No. 2*.—Comb not projecting beyond the box, attached to the sides not less than two-thirds of the way around, and not more than 80 unsealed cells exclusive of the row adjacent to the box.

II. COLOR:

On the basis of color of the honey, comb honey is to be classified as: first, white; second, light amber; third, amber; and fourth, dark.

III. WEIGHT:

1. *Heavy*.—No section designated as heavy to weigh less than fourteen ounces.

2. *Medium*.—No section designated as medium to weigh less than twelve ounces.

3. *Light*.—No section designated as light to weigh less than ten ounces.

In describing honey, three words or symbols are to be used, the first being descriptive of the finish, the second of color, and the third of weight. As for example: Fancy, white, heavy (F.W.H); No. 1, amber, medium (1-A-M), etc. In this way any of the possible combinations of finish, color, and weight can be briefly described.

CULL HONEY:

Cull honey shall consist of the following: Honey packed in soiled second-hand cases or that in badly stained or propolized sections; sections containing pollen, honey-dew honey, honey showing signs of granulation, poorly ripened, sour or "weeping" honey; sections with comb projecting beyond the box or well attached to the box less than two-thirds the distance around its inner surface; sections with more than 60 unsealed cells, exclusive of the row adjacent to the box; leaking, injured, or patched up sections; sections weighing less than ten ounces.

NEW HONEY-GRADING RULES ADOPTED BY THE COLORADO STATE BEEKEEPERS' ASSOCIATION,

DECEMBER 18, 1911.

FANCY WHITE.—Sections to be well filled, comb firmly attached to all sides and evenly capped except the outside row next to the wood. Honey, combs, and cappings white, and not projecting beyond the wood; wood to be well cleaned; no sections in this grade to weigh less than 13½ ounces.

No. 1.—Sections to be well filled, combs firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey white or very slightly off color. Combs not projecting beyond the wood; wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

CHOICE.—Sections to be well filled; comb firmly attached; not projecting beyond the wood, and entirely capped, except the outside row next to the wood. Honey, comb, and cappings from white to amber, but not dark; wood to be well cleaned; no section in this grade to weigh less than 12 ounces.

No. 2.—This grade is composed of sections that are entirely capped, except row next to wood, weighing from ten to twelve ounces or more, also of such sections that weigh 12 ounces or more, and have not more than 50 uncapped cells all together, which must be filled. Combs and cappings from white to amber in color, but not dark; wood to be well cleaned.

EXTRACTED HONEY.—Must be thoroughly ripened, weigh 12 pounds per gallon. It must be well strained, and packed in new cans. It is classed as white, light amber, and amber.

STRAINED HONEY.—This is honey obtained from combs by all other means except the centrifugal extractors, and is classed as white, light amber, amber, and dark; it must be thoroughly ripened and well strained. It may be put up in cans that previously have contained honey.

BOSTON.—We quote fancy and No. 1 white comb honey at 15 to 16; fancy white extracted honey in 60-lb. cans, 11. Beeswax, 30.

Boston, Feb. 19.

BLAKE-LEE CO.

DENVER.—Our local market is well supplied with honey, and our jobbing quotations are as follows: Strictly No. 1 white, per case of 24 sections, \$2.70; choice, \$2.57; No. 2, \$2.43; extracted white, 8 to 9 cts.; light amber, 7 to 7½. We are in the market for beeswax, and pay 80 cts. per lb. in cash, and 32 in trade, delivered here.

THE COLORADO HONEY-PRODUCERS' ASSOCIATION.
Denver, Col., Feb. 19. FRANK RAUCHFUSS, Mgr.

Honey reports continued on page 5.

**JUST
OUT!**

New 1914 Catalog--"Everything for Bees"

Lay your plans for the new season now. Send for the 1914 Muth Catalog of Beekeepers' Supplies. It's just off the press. In it you will find full information about the remarkable MUTH SPECIAL Dovetailed Hives. Drop a postal card at once—sure!

THE FRED W. MUTH CO.

204 WALNUT STREET

"The Busy Bee Men"

CINCINNATI, OHIO

P. S.—Ship us your old combs and cappings and let us render them for you. Our process extracts the last drop of wax from the slumgum. This means money for you. Write for full particulars.

SPECIAL DELIVERY

During this month we shall double our usual efforts in points of delivery and service. We carry nothing but the Root make, which insures the best quality of every thing. We sell at factory prices, thereby insuring a uniform rate to every one. The saving on transportation charges from Cincinnati to points south of us will mean quite an item to beekeepers in this territory. We are so located that we can make immediate shipment of any order the day it is received.

New 64-page Catalog

Our new 1914 catalog contains double the pages of former editions and requires extra postage. It is filled from cover to cover with complete lists of goods in every line to meet every requirement of beekeepers. If you haven't received a copy when you read this, be sure to ask for one. It will save you money.

New Features for 1914

Few radical changes have been made this season. It should be noted, however, that we will send out with regular hives, unless otherwise ordered, the metal telescopic or R cover with super cover underneath. The side rail for the bottom-board will be extra length so as to overcome the difficulty experienced by some last season. Improvements have been made in extractors. We shall carry a very heavy stock so that orders may be filled with our usual promptness. Write us your needs.

C. H. W. Weber & Co.

2146 Central Avenue

Cincinnati, Ohio

Gleanings in Bee Culture

E. R. ROOT
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A. I. ROOT
Editor Home Dept.

H. H. ROOT
Ass't Editor

J. T. CALVERT
Business Mgr.

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DISCONTINUANCES. Notice is given just before expiration. Subscribers are urged, if unable to make payment at once after expiration, to notify us when they can do so. Any one wishing his subscription *discontinued* should so advise us upon receipt of the expiration notice; otherwise it will be assumed that he wishes GLEANINGS continued and will pay for it soon.

HOW TO REMIT. Remittances should be made by draft on New York, express-order or money-order, payable to the order of The A. I. Root Co., Medina, Ohio. Currency should be sent by registered letter.

AGENTS. Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

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Honey reports continued from page 2.

CINCINNATI.—There is no demand for either comb or extracted honey at the present time. Nevertheless we would sell comb honey at \$3.75 per case for fancy and No. 1, and 7½ to 10 for our white-clover extracted honey; for our amber honey, from 5½ to 8 cts. per lb., according to the quantity and quality. These are our selling prices, kindly observe. For bright yellow beeswax we are now paying 32 cts. per lb. delivered here.

Cincinnati, Feb. 17. THE FRED W. MUTH CO.

KANSAS CITY.—The supply of comb honey is large, demand light. Supply of extracted honey is fair, as is the demand. We quote No. 1 white comb, 24 sections to the case, \$2.50 to \$2.65; No. 2 ditto, \$2.00 to \$2.25; No. 1 amber ditto, \$2.25 to \$2.50; No. 2 ditto, \$2.00 to \$2.25; extracted white, per lb., 8 to 8½; extracted amber, per lb., 7½ to 7¾. Beeswax, per lb., 25 to 30.

C. C. CLEMONS PRODUCE CO.

Kansas City, Mo., Feb. 16.

ZANESVILLE.—While there are some calls for honey, the demand is far from brisk at this time. We quote number one to fancy white comb at 16½ to 18½ in a jobbing way; wholesale, 18 to 20. Best white extracted in 50-lb. cans, 9 to 10. These quotations are for white-clover honey; alfalfa and other western honeys rule about a cent less. The price of beeswax is largely arbitrary. At this writing, producers are receiving 32 cts. cash, 34 in trade.

Zanesville, Feb. 17. EDMUND W. PEIRCE.

CHICAGO.—Sales have improved in volume during the past thirty days; prices, however, are unsatisfactory in that they have a lower tendency, and some of the comb honey shows granulation, which renders it unfit for table use. Fancy grades sell in small quantities around 15 cts. per lb.; but the off grades are difficult to place at uncertain prices. Extracted honey, consisting of white clover and basswood, are rather firmly held, and sell at from 8 to 9, according to quality and package; but the western and southern grades of white are very dull, and sell at from 1 to 2 cts. per lb., below these figures, and is most difficult to move in quantities. Beeswax sells upon arrival at from 31 to 32, according to color and cleanliness.

Chicago, Feb. 16. R. A. BURNETT CO.

ST. LOUIS.—Our honey market is decidedly dull, and the demand the past few weeks has fallen off to a great extent, especially on comb honey. Southern extracted honey is in lighter offerings; but the demand also is rather dull. We are quoting to-day, in a jobbing way, as follows: Southern extracted and strained bright amber honey in barrels, 6½ to 7; in five-gallon cans, 7 to 7½; dark, ½ to 1 ct. per lb. less; comb honey, fancy clover, 14 to 16; light amber, 12 to 14; amber, 10 to 12; dark and inferior, 8 to 10; comb honey by the case, fancy clover, \$3.00 to \$3.50; light amber, \$2.50 to \$3.00; amber, \$2.00 to \$2.25; dark and inferior, \$1.75 to \$2.00. Beeswax very firm; prime, 32½ per lb. Impure and inferior, less.

St. Louis, Feb. 18. R. HARTMANN PRODUCE CO.

NEW YORK.—Our market remains in the same condition dull and inactive. As to comb honey, there is some little demand for No. 1 and fancy white, while off grades, mixed, and buckwheat are almost unsalable. During the past few weeks we have received several shipments of the last-mentioned grades, which we would rather not have sent to us at all. The honey is more or less candied, combs poorly filled, some not fastened to the comb, and broken loose; and as the season is practically over, with no demand to speak of, it will be hard work to dispose of these goods. We can not encourage shipments of off grades of comb honey, mixed, or buckwheat at this time, for we feel sure that we can not make sale in a reasonable time, nor satisfy the shippers, and therefore would rather not handle these grades at all. As to extracted honey, the only grade for which there is a demand at this time is fancy quality white clover, which is selling at from 8½ to 9. All other grades are in poor demand. Beeswax is steady at former prices.

New York, Feb. 18. HILDEETH & SEGELKEN.

Deposit your Savings with The SAVINGS DEPOSIT BANK CO.

of MEDINA, O.

The Bank that pays 4%

Write for Information

A.T. SPITZER PRESIDENT	E.R. ROOT VICE-PRESIDENT	E.B. SPITZER CASHIER
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ASSETS OVER ONE MILLION DOLLARS



Johnnie-on-the-Spot Deliveries

When you order Bee Goods you want them "now." We are in the very heart of the Bee Section—no city with so good package-car service—largest stock west of the Mississippi. Whenever possible orders shipped same day as received—more carefully packed than ordinary.

BLANKE'S BEE BOOK FREE—a catalog filled with helpful tips for either beginner or old-timer. Write to-day before you need supplies.

Department 2

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St. Louis, Mo.

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A Free Trial Package Is Mailed to Every One Who Writes.

A. L. Rice, a prominent manufacturer of Adams, N. Y., has discovered a process of making a new kind of paint without the use of oil. He calls it Powdrpaint. It comes in the form of a dry powder and all that is required is cold water to make a paint weather-proof, fire-proof, and as durable as oil paint. It adheres to any surface, wood, stone, or brick, spreads and looks like oil paint, and costs about one-fourth as much.

Write to Mr. A. L. Rice, Manufacturer, 8 North St., Adams, N. Y., and he will send you a free trial package, also color-card and full information showing you how you can save a good many dollars. Write to-day.

An Opportunity to Make an Independent Living from a small cultivated area in “The Land of Manatee” On the Gulf Coast of Southern Florida

All the early vegetables, marketed at highest prices, are successfully grown—3 and 4 different crops per annum. A home in a delightful year-round climate. A young man paid \$125 for an acre of land this year, and spent another \$125 in clearing and cultivating it in tomatoes. The production was 550 baskets, which were sold at \$2.50 per basket; total gross production from a single crop on an acre of ground, \$1375. The same advantages and opportunities are open to you. Let us tell you in detail of the possibilities in this favored section. Ask for beautiful illustrated book, “Fruit and Vegetable Growing in Manatee County.”

J. A. PRIDE

General Industrial Agent
SEABOARD AIR LINE RAILWAY
Suite No. 376, Norfolk, Va.

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We are now booking orders for our celebrated Leather-colored and Golden Italian Queens. Bees in $\frac{1}{2}$, 1, and 2 lb. packages. Nuclei in 1, 2, 3, or 5 frame, either on Danz. or Hoffman frames. Full colonies in 8 or 10 frame L. hives or Danz. 10-frame hives. Write at once for special card of prices, and book your order with us early.

Letter of endorsement to us from The A. I. Root Co.:

Medina, Ohio, Feb. 6, 1914.

The Penn Co., Penn, Miss.:

Replying to yours of Feb. 8, we would state that we have bought a large number of queens of you. We have found them uniformly marked, and of a good stock; in fact, they are first-class in every respect. Another thing, we have always found that you make prompt deliveries, or give us notice promptly when such deliveries could not be made.

THE A. I. ROOT CO.,
by E. R. Root, Vice-president.

Get our prices at once. . . . The largest queen and bee yards in the South.

The Penn Co., Penn, Mississippi

THE A. I. ROOT CO.'S CANADIAN HOUSE

DADANT FOUNDATION
Bees, Queens, Honey, Wax, Poultry Supplies, Seeds

Write for a Catalog
The Chas. E. Hooper Company
185 Wright Ave., Toronto, Ontario

HONEY COMB AND EXTRACTED

We can furnish both comb and extracted honey to beekeepers who have run out of their own product. All our honey is strictly first class. . . . Italian bees and queens in season. . . . Write for prices.
Latshaw Honey Co., Carlisle, Indiana

THE MONEY-MAKING HIVE

THE PEERLESS HIVE

Your bees will bring you more honey if you will protect and aid them. Your profits are never low with the Peerless Hive. The improvements are self-explanatory. Double walls; two-inch space between the walls for packing, half-inch material, standard ten-frame, etc., and the most serviceable hive made. Send a postal for little story of success with the Peerless Hive.

L. F. Howden Mfg. Co., Fillmore, N. Y.

QUALITY HILL Queens!

"THE QUEENS YOU'LL EVENTUALLY BUY"

Buy Quality Hill famous utility queens—an excellent honey-gathering strain of light or dark Italians. Breeders selected for color among mothers exceeding average apiary yield. Drone mothers from the highest yielders only. Winter excellently here and have proven especially resistant to foulbrood. All queens reared in full colonies while fed; mated in four-frame nuclei, which gives large, vigorous, and prolific queens. Purity of mating, safe arrival, freedom from disease, and satisfaction guaranteed. Write today for booklet, "A Story of Success."

	May 1 to July 1			July 1 to Nov 1		
	1	6	12	1	6	12
Untested	\$ 1.00	\$ 5.00	\$ 9.00	\$.80	\$ 4.75	\$ 8.50
Tested	1.75	9.00	17.00	1.50	8.00	15.00
Select Tested	2.75	straight		2.50	straight	

Write for breeders, \$4.00 and up. Reference, Plainfield State Bank.
Five per cent discount on dozen orders; delivery after July 1.

KENNETH HAWKINS, PLAINFIELD, ILLINOIS

Special Sale of Honey

WE HAVE produced a fine lot of extracted honey this season from our eight out-yards. In addition to our own honey, we have purchased many other lots from prominent producers, and are now able to offer for prompt shipment the following flavors of extracted honey :

ALFALFA, ORANGE,
SWEET CLOVER, LIGHT AMBER,
WHITE CLOVER, DARK AMBER,
BASSWOOD, BUCKWHEAT.

Several of the last cars of comb honey which were shipped us in 1913 contained a large number of cases of broken comb honey, caused by the cars being badly handled in transit.

We are obliged to regrade all shipments; and in every case where we found broken combs we melted them up. All the combs that are slightly cracked or have the cappings broken, we put into other cases; and these cases of cracked comb honey, which is practically all produced from white clover, we are offering at a special low price and at prices which we believe will certainly be of interest to you; and we know that, if you will send us in an order, you will be pleased with the honey at the prices we are asking for it.

We have other choice grades of Fancy and No. 1 white comb honey, as well as Fancy and No. 1 amber comb honey, and during these months we are making special prices to our regular trade.

A request will bring special prices.

The A. I. Root Co., Medina, O.



BUY CARNIOLANS IN CARNIOLA

Pure Carniolan Alpine bees. Write in English for booklet and Price list. . . . Awarded 60 honora.

JOHANN STRGAR, . . Wittnach
P. O. Weichener Feistritz, Upper
Carniola (Krain), Austria

This is the season for discounts on Bees and Bee Supplies

If you will send us a list of goods needed we will be pleased to quote you on them. Catalog free.

I. J. STRINGHAM, 105 PARK PLACE, NEW YORK

Apriesee, Glen Cove, L. I.

Marchant's Island Bred Queens

Bred from selected mothers, and mated to isolated drones of a different strain. My aim is quality and not quantity. So if you want any of these choice purely mated queens order now or you may not get them as I am going to rear only a limited number. No disease, and your money back if not satisfied. The A. I. Root Co. use my queens, which is proof of their quality. No need to write for lower prices.

Reference, The American Exchange Bank of this city.

Prices—Untested, single, \$1.50; 6 for \$6.00; 12 for \$10.00; in lots of 25 or more, 75 cts. each. Select tested, \$8.00. Breeders, \$5.00 and \$10.00.

A. B. Marchant, . . Apalachicola, Florida

Queens from Caraway's Prize-winning Stock. . . .

Ready for Shipment
after March 20

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I have disposed of business in Philadelphia, and will raise all queens that I possibly can the coming season, and will fill all unfilled orders first. Queens are getting better each year. Prices: Select untested, \$1.50; tested, \$3.00; breeders, \$5 to \$10. . . . Send for booklet. GEO. M. STEELE, 30 So. 40th St., PHILADELPHIA, PA.

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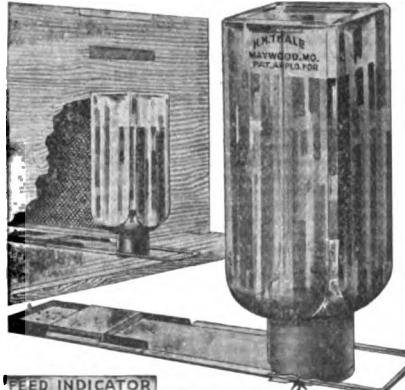
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 I will ship you as many feeders as you may want on ten days' free trial in your own apiary; and if they do not work as represented you may return them at my expense, and your money will be refunded. Send for free trial offer. Address FREE TRIAL, Dept. G 194.

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Eastern Buyers Send Orders to Earl M. Nichols, Lyonsville, Mass.
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MOST PERFECT STIMULATIVE FEEDER ever constructed. It feeds inside underneath the cluster, and will fit any hive made. To fill feeder lift off empty bottle and set on full one. It is so regulated by the slide from the outside of the hive to feed any amount you may want the bees to have in one day. If you set it on one-half pint in one day the bottle of feed will run four days and nights and can be increased or decreased from the outside of the hive without disturbing the bees or moving the feeder. It feeds continuously, thereby imitating a natural honey flow, and will produce more brood with less cost than any other feeder made, and can be filled any time of the day without causing robbing or excitement. Queen-breeders especially can not afford to be without this feeder, as hundreds of valuable queen-cells are torn down and destroyed by the bees annually on account of improper and poor methods of feeding. With this feeder you control the flow; it feeds continuously, and will produce more cells, better cells, and the bees will not destroy any. Try this feeder. It will more than pay you. Send for feeder circular and bee-supply catalog. I carry a full line of Lewis Beeware and Dadant's Foundation. One of my Vacuum Bee Feeders complete with two bottles FREE with every ten-dollar order. Send me a list of your wants—it is no trouble to answer letters.

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Sample Feeder, with 2 bottles complete, mail postpaid, 55c
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We Expect to Use
SEVENTY TONS

of beeswax during the next SIX MONTHS, and we have on hand less than twenty tons. We offer for good average wax, delivered at Medina, 33 cts. CASH, 35 cts. TRADE. If you have any good wax to sell write to us or ship it by freight. Send us shipping receipt, giving us gross weight also net weight shipped. Be sure to mark your shipment so we can identify it when received.

Beeswax Worked into Foundation

If you want your wax worked into foundation we are prepared to do this for you at prices equal to those made by other standard manufacturers. Write for price if interested.

The A. I. Root Co., Medina, Ohio

Are You Interested.....

In securing a crop of honey this coming season? Send us your name and address for 1914 catalog, and make selection of the hive and appliances. You should have a good year if you are prepared as the honey yield begins.

The A. I. Root Co., Syracuse, N. Y.
1631 West Genesee Street

"If goods are wanted quick, send to Pouder."

ESTABLISHED 1889

Bee Supplies

Bees in this zone are in winter quarters with a bounteous supply of natural winter stores, and I believe that no other feature is quite so important as regards safe wintering as an abundance of wholesome stores. The fall flow was so profuse that in some instances brood-rearing was curtailed early on account of crowded condition, and some strong colonies were weakened on this account. A few losses may result from this condition. The white clover in this zone is in good condition with the exception of a few counties which suffered from drouth. Conditions for ensuing year are very encouraging for both beekeeper and the supply-dealer. The last year will be remembered as a most excellent honey year, and with it came the best demand for honey that has ever been known. I am receiving more inquiries and orders for Root Bee Supplies than ever before during midwinter, and some discounts for early orders are still available. The policy of this house as to prompt shipments and a fair and satisfactory deal will be maintained as heretofore, and I hope to deal with you in a way that will justify your recommending my goods to your neighbor.

WALTER S. POUDER:—*I am more than pleased with your promptness. Kentuckians are generally credited as being quick with a gun, but I do not think the fastest in that line can equal the speed a certain Indiana man uses in shooting out the goods. Those paper honey-jars are certainly the trick for local trade.*

Louisville, Ky.

Yours truly,
OTTO F. RECKTENWALD.

I should like to place in your hands my catalog with 1914 revised prices on bee supplies. Or send a list of your requirements, and let me see if I can not create a saving for you by quoting an estimate. This will place you under no obligations, and it will be one of my pleasures.

I can use more beeswax, and am now paying 31 cents cash or 33 cents in exchange for goods.

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We carry a full line of supplies at all times.

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Guaranteed by the owners.
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"Griggs Saves You Freight"

New goods arriving permits us to fill orders same day as received, and this, with direct lines to your door and low freight rates, makes TOLEDO the best place to order your goods from.

Our NEW ILLUSTRATED CATALOGS for 1914 are here and being mailed out. Send your name for one.

Send us list of goods wanted and receive our SPECIAL PRICES for quantity orders. BEEWAX is in great demand. Send it in now. We pay 32c cash, 34c in trade. Shoot it in.

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When You Buy Lewis BeeWare

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LEWIS QUALITY.—Which means that all Lewis Hives are made out of clear white pine, and Lewis Sections made out of fine white basswood. Material in these goods is the best obtainable, selected by experts.

LEWIS WORKMANSHIP.—The Lewis Factory is equipped with the latest improved machinery, constantly watched over by experts. The Lewis head mechanic has 36 years of bee-supply experience; the superintendent of bee-hive department 30 years; the superintendent of sections 29 years. These and many other skilled men have a hand in all the Lewis goods you buy.

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LEWIS SERVICE.—Years ago all goods were shipped direct from the factory with attending high freight-rates and delays during the honey season. NOW Lewis BeeWare can be obtained almost at your own door. Over 30 Distributing Houses carrying Lewis BeeWare by the carload are dotted all over the United States and foreign countries. Write for the name of the one nearest you.

Our New 1914 Catalog is Now Out. Send for One

G. B. LEWIS CO., Manufacturers
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Send for Our Prices on

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We are paying higher prices than ever before at this season. WHY? Because of the tremendous demand for

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Write at once. . . We will quote prices F. O. B. here or F. O. B. your station.

DADANT & SONS
HAMILTON, ILLINOIS.

Gleanings in Bee Culture

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Editorial

As reported by our California correspondent, Mr. P. C. Chadwick, in his department for this issue, the conditions for the honey-flow continue favorable in California. While in many localities there was but little rain in February, yet the general rainfall for the winter is far above the average. All reports indicate that the bees are bringing in pollen, and breeding up rapidly.

GLEANINGS has just been enjoying a visit from Morley Pettit, Provincial Apiarist of Guelph, Ont., Canada, and his sister, who stopped at Medina a part of one day on their way home from the National convention at St. Louis. Miss Pettit has almost entire charge of practically 300 colonies, and is an experienced beekeeper in the fullest sense of the word. She makes use of a power extracting outfit, and is an expert in the handling of extracted honey.

Mr. Pettit has been doing some splendid constructive work in Ontario, and he deserves the good wishes of all, whether on this side of the line or on the other. So far as beekeepers are concerned, this "line" is becoming more and more imaginary.

Mr. Pettit desires to correct the statement made in an editorial in our Dec. 15th issue. While a frequent contributor to the *Canadian Horticulturist and Beekeeper*, he is not the editor of the apiarian department.

DEATH OF F. B. CAVANAGH.

OUR readers will be greatly shocked to learn of the very sudden death of F. B. Cavanagh, of Hebron, Ind. Mr. Cavanagh had been ill for several months, but no one was prepared for his death, which occurred on the morning of February 12th. Mrs. Cavanagh has the sympathy of the entire GLEANINGS force. We understand that the entire outfit of bees, etc., is to be sold.

Mr. Cavanagh was a successful beekeeper and one who was rapidly becoming an authority on many topics connected with our pursuit. He was a frequent contributor to these columns, and his articles bore the stamp of accuracy inspired by an intimate

knowledge of the subject acquired through personal experience. His opinions were really the result of his own experiments, and he rarely proposed untried theories.

When we visited him in July, 1911, he seemed to have any amount of physical strength and endurance. It is hard to believe that our friend has been thus suddenly cut off from finishing his work here.

DEATH OF A NEW YORK BEEKEEPER.

WE are very sorry to be obliged to chronicle the death of Mr. Chas. L. Wardwell, of Union Springs, N. Y. He was one of the vice-presidents of the Cayuga County Society, and an expert in comb-honey production. At the time of his death he had over 100 colonies, which he had packed for winter on the summer stands. He put his honey into cartons, and secured the best prices.

Mr. Wardwell died very suddenly in December. He would undoubtedly have become a comb-honey specialist of note.

A CORRECTION.

THE following will explain itself:

In your editorial in the Feb. 1st, issue I note one point which may be a trifle misleading. On page 83, second column, second paragraph, first line, the word "apiaries" is used where "colonies" was evidently intended. All the experiments mentioned in bulletin No. 158 were made in one apiary, and, indeed, such experiments would not be worth much unless they were in one and the same apiary. Colonies side by side are under the same conditions as regards the supply of available nectar, and as regards weather conditions, but comparisons could not be made between colonies in different apiaries, as there would be practically no possibility of conditions being the same in the different yards.

WILMON NEWELL.

College Station, Texas, Feb. 13.

PROSPECTS IN FLORIDA—E. R. ROOT'S TRIP, BY TELEGRAPH.

THE general cold in the North has made it colder than usual in Florida. In the northern part of the State there were some frosts, but not enough to do any damage. The weather has turned warm again (Feb. 20), and the abundant rains throughout the State give promise of a good crop of honey.

In the region of Bradenton the penny-

royal has started brood-rearing, so that the bees are in excellent condition. The palmetto and orange promise a good yield. The cool weather in Florida about the 13th, when I arrived, made it seem better to do the South first, and then take in Apalachicola, where our bees are. Later reports show that they are building up rapidly so that we shall soon make increase.

In our next issue I hope to give a full report. Next week I expect to visit the region of Stuart, on the east coast, where Poppleton and Selser are. At that point we expect to take a launch, and tour the inland waterway a short distance.—E. R. R.

KEEPING BEES WITHIN CITY LIMITS.

SEDOM have we been so deluged with copy for a special number as we have been in case of this number—the special on bee-keeping in cities. We have not been able to use all which we received by any means; and in order to get in a representative lot of experiences from all types of city beekeepers we were obliged to condense quite a number of articles that we did use.

There are some drawbacks which we believe should be mentioned at this time. As several of the writers in this issue point out, at times there may be trouble with neighbors who have not made a careful investigation, and who do not know very much about the subject. In several instances that have come to our notice in the past, a beekeeper having a few colonies in his back lot has been asked to move his bees outside the city limits. The beekeeper in question obligingly did so; but the one complaining has found, somewhat to his surprise, that there were just as many bees "biting his grapes" as there were before. The point is this: Bees are not observers of local ordinances; and unless *all* colonies are moved some two or three miles outside the city limits there probably are just as many bees found inside the city as ever. But since there are likely to be bees in trees, etc., near the city, it is next to impossible to prevent bees from flying about inside.

In another way, however, bees within city limits may sometimes prove to be a nuisance. We refer to bees kept in such a place that the natural line of flight is across some street or alley. In this case passersby are likely to be stung occasionally; and if one person is stung more than once he is pretty likely to make a vigorous complaint, which complaint is really justifiable. In our opinion, if a place for the bees can not be found where they will be compelled by surroundings to fly pretty well into the air when they leave the hive, or where they will

have a natural line of flight away from thoroughfares or other places where there are likely to be people passing back and forth, it would be better to make no attempt at keeping bees at all. Nearly always, however, the hives may be placed where the bees will molest no one. Oftentimes if they are located on a roof, even in a crowded district, their presence will hardly be known.

The beekeeper should select gentle bees, also, and he should be very careful not to stir them up during a time when they are naturally a little irritable, as during a honey-dearth, when they are inclined to pry into everybody's business but their own.

Summing up the whole matter we may say that it rests entirely with the beekeeper as to whether his bees are a nuisance or not. By taking some thought as to the location of the hive, to the selection of the bees, and to the time and manner of manipulation, he can avoid all trouble. Carelessness regarding any of these points invites trouble.

ARE CITY BEEKEEPERS A MENACE TO THE INDUSTRY IN GENERAL?

Frequently some of our professional beekeepers deplore the existence of the large army of beginners in beekeeping; first, because they produce considerable honey and contribute to the overstocking of city markets, thus lowering prices; second, because disease is likely to get into their yards, so that other bees are in danger.

To the first of these points we should like to say that the average beginner, for a number of years at least, produces more enthusiasm and interest than he does honey. In other words he creates a much larger market for honey than he can possibly supply himself. Furthermore, the average beginner gets a better price for his small crop than most professional beekeepers do. It seems to us, therefore, that fears along this line are groundless.

As to whether a beginner allows his bees to become diseased, thus endangering the health of the other colonies in the vicinity, we should say that this depends upon the beginner. In our opinion, trouble along this line is more apt to come from careless or overworked farmers who really have no interest in the bees at all, and who keep them merely because their fathers used to keep them, or because they are able to hive occasionally a stray swarm. A beginner who is interested in his bees is not likely to foster disease. In case of city beekeepers especially (at least those who are as bright and as up-to-date as the writers of the articles used in this special number) we believe we have very little to fear from foul brood or other bee disease.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

My first start in beekeeping was in the very center of a place now a city (Marengo), with an apiary of one colony in a whole sugar-barrel.

"As the soil, so the honey," is the caption of an item in *Leips. Batg.*, 125, in which it is stated that analysis of soil from Rambouillet shows 30 per cent more iron than soil from Bid; and honey from Rambouillet contains 75 per cent more iron than Bid honey.

MESSRS. Doolittle and Root agree that bees may be hauled with no inconvenience in hives with entrances open. Certainly this mode of transport would not be tolerated in Europe.—*L'Apiculteur*, 32. I think Doolittle and Root hardly commend it as a general practice.

The British Bee Journal has uniformly opposed beet sugar for bees. I never knew just why. But now I find, p. 510, that it is difficult to purify beet sugar and to get rid of all the potash salts. "These salts cause fermentation, and it is principally for this reason that cane sugar is to be preferred."

DR. A. LUDDEN thinks my bees were cross last summer in anticipation of a partial stoppage of the flow. At Elwha, Wash., he says it is "the rule that 24 to 48 hours previous to closing of a honey-flow they get hostile, and 'tis not safe for any one to go into the yard, and honey coming in at a good clip too." I wonder if it can be possible.

FOR the first time in many years I had some combs filled last summer, for extracting. They were extracted in January, of course after warming up. It went better than I expected, but I don't recommend January as the best month for extracting. I have an up-to-date extractor; and what fun extracting is, compared with extracting years ago with the ancient Peabody!

THAT able authority, D. M. Macdonald, says, *British Bee Journal*, p. 478, "I do hold that with us blacks live longer than Italians, the latter being here a softer race." No doubt that canny Scotchman had a vision of a lot of American beekeepers jumping on to him; hence the cautious "with us" and "here." Yet he may not be entirely safe from some of his own countrymen.

Nos. 29 and 59 stood back to back. June 10 queen-cells were killed in 29 and its queen removed. June 16 No. 59 swarmed and returned, its clipped queen not being found.

Within 15 minutes No. 29, whose queen had been removed, swarmed out, and a clipped queen was found in front of the hive. It was the queen of No. 59, which had entered No. 29 while the swarm of 59 was in the air, and then ordered a walkout in No. 29.

THE few hundred pounds of extracted honey I produced last season I put on the home market in 5-pound friction-top pails. I determined I wouldn't have any worry taking it back to liquefy it or to explain because it candied after customers got it. I made sure it wouldn't candy in the hands of customers by letting it candy before selling it. If they don't want candied honey they don't have to buy it. But it sells all right, and I've heard no complaint.

ALLEN LATHAM is making trouble. He wants to know, Mr. Editor, on what ground you base your disbelief in the fanning of bees in the midst of winter cluster. He says we should not disbelieve simply from ignorance—fuller information may change belief—hard to prove a negative—and more of that sort. Jan. 13, 14, mercury hovering around zero, and wind howling, he went to his hives and all were noisy, some buzzing almost as much as in a summer nectar-flow—no bees at entrance, no warm air issuing, and he wants to know what's wrong with thinking the noise came from inside the cluster. Here's the way it has always seemed to me: We are told that when very cold the bees shrink into an incredibly small cluster, and when crowded thus close what room is there for fanning? Still, just to accommodate A. L., I'm ready to change my belief on later and fuller information, and leave you, Mr. Editor, to say why you disbelieve. [We know that outdoor bees sometimes set up a roaring in very cold weather; but we always supposed the condition was abnormal. When bees in a compact ball are in a state of semi-hibernation or hibernation, if you please, in which they seem to go into a dead sleep, without a tremor of motion except a slight tremble of the wings when the hive is opened, there could be no buzzing or fanning. On the other hand, if we open up an outdoor colony in the dead of winter and find the cluster scattered over the frames, and buzzing, we feel sure that that colony will die very soon, even though it be the strongest stock in the yard. Yes, doctor, we are in line with you, but we are willing to change our belief if necessary on fuller information.—ED.]

Notes from Canada

J. L. BYER, Mt. Joy, Ont.

Normal winter weather here in Ontario since last Notes were sent in; and to-day, Feb. 10, we have about 6 inches of snow covering the clover that we hope to get some honey from next year. We had much more snow, but the rains took it away. Bees are wintering nicely so far—last flight Nov. 23.

* * *

THE SHORT COURSE AT GUELPH.

The writer spent two days at Guelph during the "Short Course" in apiculture. As I fully expected would be the case, there was a bumper attendance—probably about 100 in steady attendance for the different sessions. One of the best things in connection with the different lectures was a series of demonstrations on queen-rearing by Mr. J. A. McKinnon, of St. Eugene, Ont. Mr. McKinnon is more at home in the real work of producing good queens than he is before a big crowd of students, but nevertheless anybody could see that he was thoroughly practical and fully understood this very important part of beekeeping. Mr. McKinnon is one of our younger men in the business, and one of the very few who make a specialty of raising good queens for sale here in Ontario.

* * *

DIFFERENCE IN VARIOUS STRAINS OF BEES IN RESPECT TO CAPPING HONEY.

Dr. Miller speaks in last GLEANINGS about Italians for capping comb honey, and says that his compare favorably with other breeds in that respect. Certainly there is a wonderful difference in strains of this breed so far as capping goes, as one good breeder, so far as his stock is concerned in other respects, has Italians that would not do for comb honey at all, if fancy sections were to be produced. Invariably, when bringing in combs to be extracted, the helpers in the honey-house notice the dark-looking cappings and say, "Some more honey from Mr. —'s bees." However, as a rule these bees are good stock, and for extracted-honey production their habit of placing cappings so close to the honey makes no difference.

* * *

CO-OPERATION : THE TRUTH IN REGARD TO THE COMMITTEE APPOINTED TO ADVISE ON PRICES OF HONEY.

Much is being written on co-operation, and just at present, no doubt, many are wishing that we had some good system in operation. The writer has always been in

favor of the principle of co-operation, but he is not even yet convinced that we can successfully operate such a system when we have so many difficulties to overcome. Beekeepers are so widely scattered over the country, so differently situated in the matter of being large or small producers, and there are so many different qualities of honey produced, etc., that the more I consider the subject the more herculean the task seems when we try to devise ways and means of forming a co-operative association. One of the serious questions in a matter of this kind is the financing of such a project to start with; but one of the *most serious* obstacles of all, as I see it, is the fact that among beekeepers, as in other callings, there are always a lot who are selfish and unreasonable. This leads me to remark that I had not much thought of co-operation in mind when I started to write this note, only in so far as a matter of comparison as to what we might expect if we were trying to run a co-operative society.

* * *

PARCEL POST IN CANADA.

To-day, Feb. 10, Canada at last starts out in giving us a parcel-post system. A glance over the proposed system as now in force seems to suggest that there is lots of room for improvement before it will interfere much with the express companies which have things pretty much their own way at present. As in the United States, the zone system is used; but the regulations now in force, except in a very few instances, are not nearly as liberal as those across the line. The worst feature is that the first zone takes in a distance of only 20 miles. For that distance the first pound is 5 cts., each additional pound 1 cent extra. The second zone takes in the limits of any one province in the Dominion, and the rates are about double those of the first zone. In other words, it would cost me as much to send a parcel to Toronto, which is 22 miles from my home, as it would to send one to Port Arthur, on the north shore of Lake Superior. However, we are now committed to the principle of parcel post, and with lots of judicious kicking, we shall get something that will make the express companies take notice.

All together, six zones are arranged for, and for the longer distances small parcels can be sent quite a bit cheaper than by express. One of the first changes that will be sure to be asked for is that the first zone be extended to 50 miles at least.

Beekeeping in California

P. C. CHADWICK, Redlands, Cal.

SEASON PROSPECTS TO DATE.

January was liberal with us in the matter of moisture, an average rainfall of eight or more inches having fallen during the month. At some places the fall was excessive, doing much damage. At Santa Barbara eleven inches was recorded for the storm, while at other points there was even more. Beekeepers are generally much encouraged at the prospects, very substantial advances in seasonable conditions having come with the rain. The ground is wet deeper than it has been for two years, with warm weather, early breeding, and excellent growth of honey-plants to encourage us still more. We are not yet assured of a honey crop, however; but an occasional good rain during February and March, with showers in April, and continued warm, should bring us an old-fashioned bumper crop for the season of 1914.

Feb. 12.—No rain so far this month. Bees coming on fine.

• • •

BEEKEEPING IN THE CITIES.

The back-lot or back-yard beekeeper is the future keeper of hundreds or perhaps thousands of colonies. In a recent issue of the *Country Gentleman* I read this: "The best way to become a successful dairymen is to grow up in the business." With the bee business it is equally true. In fact, I believe there is no branch of agriculture that requires as intimate a knowledge to make it a success as does the bee business. At any rate, the back yard is the incubator of future beekeepers. I wonder what per cent of our beekeepers of to-day had their start in this small way. My guess would be that fully 95 per cent start with a few colonies. I know of a few men, however, who started at the top, and are working down; and they are coming down faster than many of us went up. The small beekeeper is not looked upon with favor in this part of the world, as he is considered a nuisance on account of disease spreading more rapidly with him than with the large beekeeper, who usually looks after his colonies a little more closely than the beginner. Be that as it may, we have the small beekeeper here, and he will be ever bobbing up while time lasts, so the inspector may as well give him a show. I enjoy the little fellows, and I like to converse with them, tell them of foolish things I did years

ago and hear them confess to laughable mistakes.

THE CITY BEEKEEPER STIMULATES THE HONEY MARKET, AND THUS HELPS THE PROFESSIONAL BEEKEEPER.

The small beekeeper is a better advertiser than the large one, for the large one does not have time to go and hunt a market, but looks for a wholesale house to take his crop, while the little fellow goes out and sells to his neighbors and teaches them to use honey. Then when the little fellow has a crop failure his patrons hunt a market elsewhere, and thus they remain permanent users of honey. Many of the advances that have been made in bee culture are not due to discoveries in large apiaries, but are the result of inquisitive experimenting by the small beekeepers. My knowledge of the bees is very largely gained by keeping a small number of colonies always near my door where they can be watched daily.

Five years ago I decided to start in the bee business in a small way on the back of my city lot, my plan being to buy a few colonies and work up just as though I had no apiary at another place. So I purchased three colonies and went to work just as if I had my first colonies. I have now increased them to such an extent that I have 30 colonies in my back yard, to say nothing of ten that were taken to the apiary three years ago. From them I have taken considerable honey, done much experimenting, and, best of all, have enjoyed their presence for the pleasant sounds they make and for the additional inspiration they have supplied me.

• • •

I fear Mr. Foster is figuring wrong with his poultry expense. He counts his time at twenty cents per hour, which I think should be added to the other side of the ledger. In the summer I put in from three to five hours on weeks days with my cows, chickens, bees, and garden in general, in addition to my regular day's work of eight hours. If I figured this time I should be losing on an average of \$2.00 a day, and should soon be bankrupt. But my view of the matter is that I am salvaging that much time that might otherwise be an entire loss. When my time is worth full value, Mrs. C. or one of the children gets the job of feeding the chickens. There is a lot of time in agricultural pursuits that is figured at very much more than it is worth.

Beekeeping Among the Rockies

WESLEY FOSTER, Boulder, Col.

WILD FLOWERS IN THE FOOTHILLS IN APRIL.

Bees located near the mountains have the advantage over those out on the plains. The wild flowers are in bloom in the foothills during the fore part of April, and the bees that reach this bloom are well supplied with pollen, and breed up faster.

• • •

RYE GRAHAM FLOUR FOR BEES.

I would urge every beekeeper whose colonies may cause the neighbors trouble in the spring to put out rye graham flour. Many farmers hold a prejudice against bees because they frequent watering-troughs, feed-stalls, etc. The beekeeper owes it to his neighbors to cause them just as little inconvenience as possible. One of the marks of a good neighbor is neighborliness; and the beekeeper can manifest this spirit by keeping the bees so well supplied with the best water easily obtainable near the apiary that they will not frequent other places; and by putting out flour or meal the bees may be kept away from the sheep and cattle feeding-bins of the farmers. Put out the flour and water *before* the bees get to frequenting other places.

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SLOW GERMINATION OF SWEET-CLOVER SEED.

The interest in sweet clover is uncovering some important facts regarding the plant, one of the most important of which is the slow germination of the seed. That this is not understood generally has been shown to me by the letters received from prospective customers and from others who have bought seed. One man wrote to me, asking if I could guarantee 80 per cent germination of the seed. The chances are that very little seed (if any new seed) will test that high. Old seed seems to germinate better than new. The amount of seed required to sow to the acre could be greatly reduced if the germination percentage were higher the first year. The slow germination is caused by the hard seed coat that is so impervious to water that the seed can not sprout readily. All who are intending to sow sweet clover should thoroughly post themselves upon the characteristics of the plant, and the seeds-men should furnish all possible help also. The sweet-clover bulletin by J. M. Westgate, published by the Department of Agriculture, Washington, will be of great help to those interested.

HOME-MADE BEE SUPPLIES.

Mr. W. L. Porter differs with me on the question of home-made bee-supplies. It is probable that, if we both had the same set of facts placed before us, we would agree. The average beekeeper can keep bees just as well in a box or home-made hive as in a factory-made hive; and as he makes no profit to speak of from his bees he is better off than if he had them in factory-made hives, because he has less money invested. However, the readers of GLEANINGS or the *Review*, where my article originally appeared, are not average beekeepers. I believe from my observation and acquaintance among beemen that the majority of up-to-date beekeepers have been well satisfied with their results in making some of their supplies. No one beekeeper is so situated that he can make *all* his supplies, and this was stated in my original article, I believe. I would distinguish between the average beekeeper and the average *reader* of the bee journals.

Most of the western beemen who make any of their supplies have them made at a planing-mill, so that they are only partially home-made. In the actual making of home-made goods there is little of it done; but by having hand or power saw the beekeeper will find it a wonderful convenience. The way the sun warps lumber in the West soon makes factory and home-made hives look much alike, both requiring constant renailing and painting.

Quite a large proportion of our most successful beemen figure that it pays to have some supplies made at home to their order. Several beekeepers I know, who count their colonies by the hundreds, make their own and their neighbors' foundation. One of them who made up several hundred pounds of brood foundation last winter told me it was his first experience, and that it was about as difficult as turning a clothes-wring'er.

Personally I do not want any home-made frames or section-holders or other inside hive furniture; but I am using some hive-bodies, super-bodies, covers, and bottoms that are giving me as good satisfaction as any factory-made goods I ever owned. I have made mistakes, and always shall; but the man who can not correct his first mistakes will not make a beekeeper.

Conversations with Doolittle

At Borodino, New York.

WHEN TO SET BEES FROM THE CELLAR.

"Will you tell when the bees should be set from the cellar in the spring? Do you think it would be any advantage to set them out the latter part of February or the fore part of March if there is a good day?"

The time of setting out may depend a little upon the time of their last flight in the fall. If you set your bees in the cellar the 15th of November, and they had a good flight the 14th, they would be likely to remain in the cellar in good condition two or three weeks longer than if their last flight had been on Oct. 22, as was the case in this locality several years ago. One beekeeper said that he knew that, if bees had a good flight as late as November 15, they could stand the confinement necessary from that time till the fore part of April. I do not feel so sure about this.

My experience has taught me that the time of putting in and setting out, within reasonable bounds, has very little to do with success; and this I say after having set the bees in as early as November 3 and as late as December 18, and having set them out as early as March 5 and as late as May 2. I think I can tell what the results will be as early as January 20—how the bees are going to come out in the spring, and this at a time when I am without any knowledge as to what the length of the confinement is to be. Some years I am sure that, if spring were to open by the middle of February, as it does generally in May, and the bees were set out then, there would be spring dwindling, with many colonies too weak for the first surplus, while at the same time other years I am sure that they could bear confinement in the cellar till May 1 and come out bright and strong for the harvest from white clover. If, on November 15, I could be informed as to the character of the stores which the bees have in their combs, the age of the greater part of those going into their winter repose, together with the temperature and moisture of the air in the cellar, I could tell pretty nearly how they would come out. But these are things which we are not always sure about, as a cool wet season is likely to give inferior stores and bees with a low vitality, while an open winter makes the control of temperature and moisture much more difficult.

Some say that, where bees seem to be wintering poorly in the cellar from any cause, they should be set out the latter part

of February, or on any favorable day thereafter, for a flight, and at night returned to the cellar; but from years of experience along this line I do not find that they are profited thereby enough to pay for the labor required. Others advocate setting all colonies out when any are so treated; and where any colony is so "sleepy" that the bees do not seem inclined to wake up we are told to pound on the hive while it is still inside the cellar, so as to stir them up so they will be ready for their purifying flight before the cool of the evening draws on. Locality may make a difference in this matter; but somehow I doubt it. Here in central New York, when the bees sleep very quietly in the cellar, as they are doing to-day (Feb. 6), they do not need a flight at all. And when we are likely to have spring dwindling, they are so restless that they will run out and spot the hives in front before this time, and, if moved at all, will rush out pell-mell with scarcely any reference to the temperature. At such times as this last, it would seem that a flight might do some good, and for a few days after setting in they do seem more quiet; but when the time of surplus comes, colonies set out prove no better than those left in, or not enough so to pay for the labor spent in getting them out and back in again. On the other hand, if they are left out they all generally perish.

I used to try to convince myself that the time to set bees out is when the blossoms of the soft maple and the elm open, and once wrote that, when the bees can come in with pollen obtained from these flowers an hour after setting out, one bee with its fellows can rear and bring on the stage of action three other bees, while an earlier setting-out would mean that three old bees would be required to raise one young one. I verily thought this was just as it should be; but from careful watching and experimenting, I am free to admit that the best results are obtained by setting out somewhat earlier than this, or when the buds of these trees begin to show their expansion by the separating of the outer covering which has protected them during the winter. In this way brood-rearing has gotten a little headway by the time the bloom opens, and then the pollen coming in is of greater value by pushing a greater volume of brood through the activity resulting from the scramble in preparing chyle for that already in the cells. The temperature should be 50 degrees F.

General Correspondence

A BEE FARM ON A ROOF IN NEW YORK CITY

BY HARRY HIRSCH

Country, town, or city, it's all the same—you can keep bees anywhere. If you have a back yard or a back porch, that will do. And if you have only a flat roof with a vista of chimneys and house-tops, that site is as good as any.

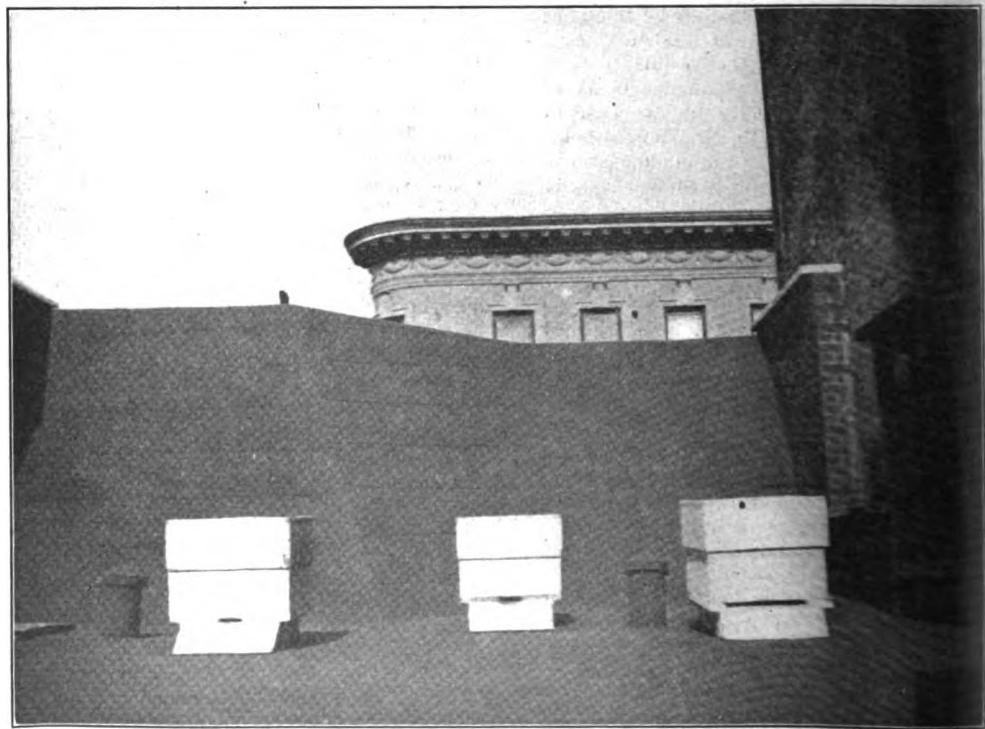
In my estimation the most important factor in city beekeeping is the careful selection of stock. Bees inclined to viciousness and swarming will not be tolerated in a crowded city. There is only one strain of bees fit to cope with the exciting conditions governing a city apiary, and that is the Italian.

So gentle and unobtrusive are my Italians, that, although I have been keeping them on the roof for three years, neighbors who live in the surrounding apartment-houses will not credit the assertion that there are thousands and thousands of bees living just beneath their windows. "Why," they exclaim, "we never see them; and, besides,

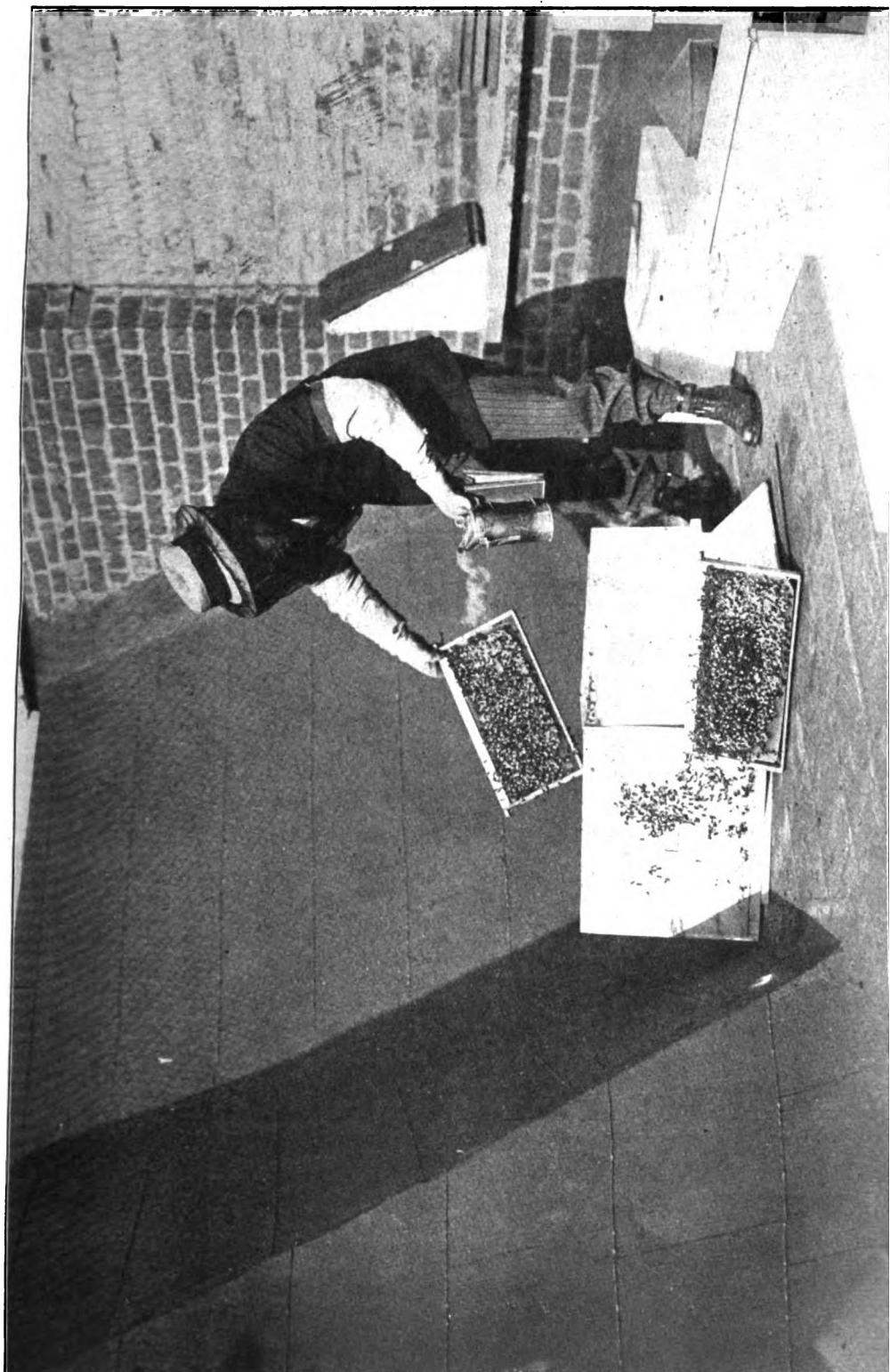
we never hear of any stings in the neighborhood." Then I usually hasten to explain that an experience based upon several years' acquaintance with bees has convinced me that stings are never heard but felt. Always a lover of nature I seek to set right my fellow-beings on matters as pointed as these.

Italian workers, besides being perfect ladies while "out shopping," as one little neighbor has so aptly described it, are also remarkably tractable when bearded in their den. This trait is of prime importance; for to get in touch with nature without getting touched by it is a delicate problem in bee-dom.

The only adequate hive for a busy city man is the double-walled chaff hive. To it I must ascribe my success, as it not only conserves the heat during winter when every icy wind has full play across the exposed roof, but has great cooling qualities during summer when the tin-roof, under the action



The sweetest spot in New York. A sheltered place on a roof is an ideal location for bees in a city. These colonies have been on this roof for three years.



of the sun, deludes itself into the belief that it is an oven in full blast whose sole duty is to bake both the hives and the bees so unfortunate as to alight on its surface.

In addition to these commendable features of the double-walled hives, the amount of labor they take off the hands of the city beekeeper at the approach of winter must not be overlooked. There is no need of packing, nailing, throwing the bees in a tumult, and creating a general mess of excelsior, hay, shavings, roof-paper, newspapers, and a thousand other improvised odds and ends, as is customary with single-walled hives. The following spring, there is no fuss in unpacking, with the risk of chilling the brood in the hives by the sudden cooling of the single walls. With double-walled hives all is calm and tranquil with the bee-keeper. Peace reigneth in his soul and in his hives.

A city man is a busy man. A city man's hobby must not encroach upon his regular occupation. It must not tend to cause him anxiety during business hours nor enforced labor out of them. The moment it does this, it ceases to be a hobby and becomes a responsibility and a bore.

Now, the conditions governing my apiary are peculiar. It is situated in the center of the largest and busiest city of America. Miles and miles of dwelling-houses surround it, with no open country for a long distance off. Where, then, do the bees obtain their honey? Why, from a city park — Central Park. Is there enough nectar to keep three hives going? you ask. Going! Why, it's all I can do during June and July to keep the enthusiastic inmates of the hives from moving over to the park *en masse* and staying there. Central Park is an unusual park. Within its one and a quarter square miles it contains trees

and shrubs from practically every part of the world. The sylvan paths of this urban arcadia present a bewildering array of alien visitors. We discover a Chinese pagoda-tree growing by the side of a Norwegian maple: a Manchurian barberry nestling in the shade of a pine from the far-off Himalayas, while in the distance the dark foliage of a Crimean linden serves as a background for a swaying bamboo-tree. Basswood (linden), the standby of honeydom, is well represented here. Louis Peet, in "Trees and Shrubs of Central Park," gives the varieties of this tree as seven, mostly European. There are fully thirty-five specimens of the linden in the park, though whether they are all honey-producers I am unprepared to say. In addition to the strange collection of native and foreign flora, Central Park contains a large botanical garden where tropical plants such as bananas, cotton, oranges, etc., are kept under shelter. During the hot days of



Taking a dare.

summer the doors and windows of the greenhouses are kept open, and the place is visited by a constant stream of bees.

In short, variety rather than quantity of bloom is the predominating feature of the nectar pasture in Central Park. This explains why my honey embraces more different varieties of flavors, fragrances, and colors than is dreamed of in the philosophy of the rural beekeeper. Frequently have I emptied a pollen-cell of its little pellets and found them of so varied a hue that, if arranged in a row, they would go far toward giving a fair example of a spectrum.

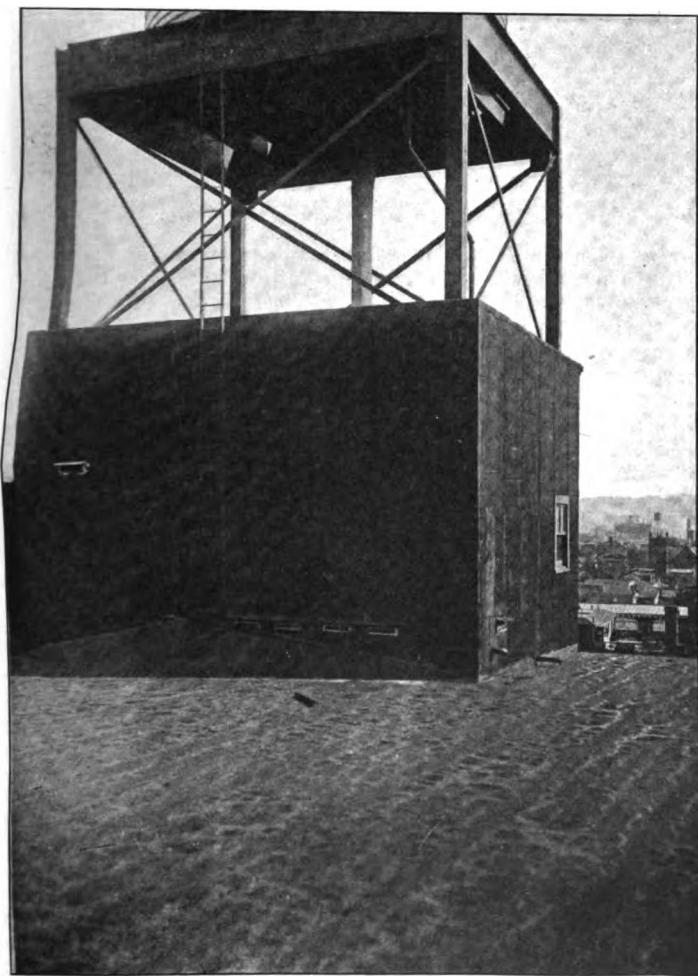
Extracting is out of the question with so few hives. I merely run them for section and comb honey in shallow frames. I use the Danzenbaker super, and place sections and shallow extracting-frames into it alter-

nately. Whatever bait sections I may need (and I find them indispensable) are secured by inserting six sections of foundation in an empty Hoffman frame. The sections can be made to fit snugly with the aid of matchsticks. The frame of sections is then placed in the hive-body to be drawn out. When the sections have been drawn out about a quarter of an inch they are removed from the frame and distributed in the supers. During the honey-flow I practice severe contraction of the brood-frames. I know that this is condemned by most beekeepers; but the end justifies the means, and a nice array of sections at the end of the season covers a multitude of sinful contractions. By contraction and a judicious use of bait sections I have averaged 16 section boxes and 12 lbs. in extracting-frames from each hive.

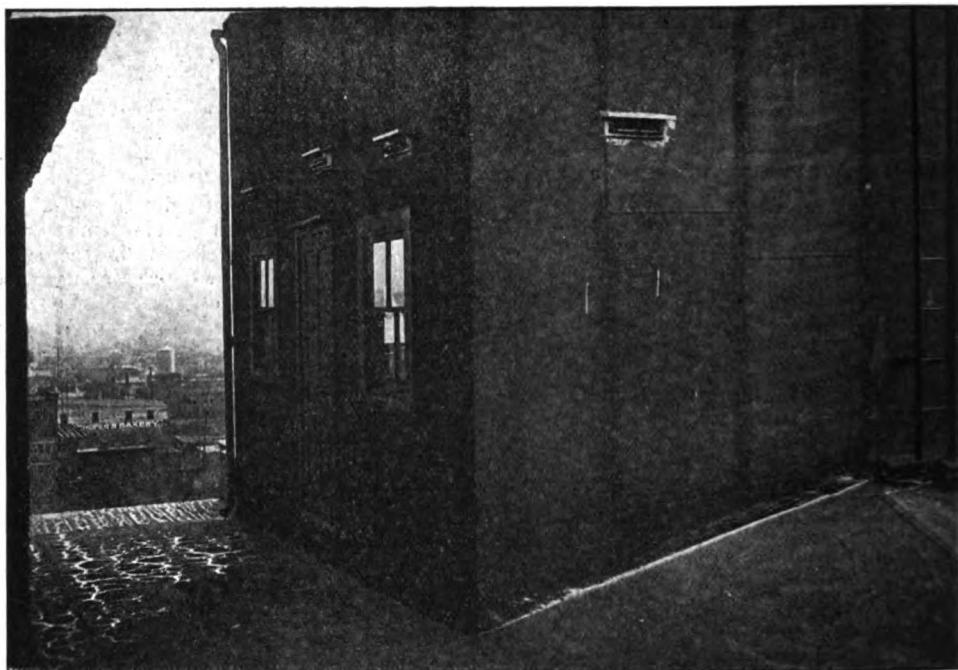
Swarming must be carefully guarded against. Eternal vigilance and clipped queens are the price of peace in a crowded city.

In the very few cases of stinging in the neighborhood during three years, investigation showed that the bees were invariably only on the defensive. A child returning from school in the afternoon perceives a "golden fly" resting on the window-sill, or perchance perched on an iron paling industriously cleaning itself. Only a few minutes before, the teacher has inoculated the child with the "swat-the-fly" theory, and the child now bubbles over with suppressed excitement as happy fortune places before her an opportunity to reduce theory to practice. With hand poised for a blow, little does the victim (I refer to the child) anticipate with what swift retribution her ignorance of entomology will be rewarded.

There is much to be derived from bees be-



Lee Essenhower's bees on the roof of a department-store building in Reading, Pa. A large tank of water keeps the temperature nearly constant.



A "house apiary" on a roof 100 feet above the street. The colonies are located inside a tank house.

sides honey or stings. What a wholesome relaxation we experience from the every-day sordid cares of the narrow cramped world when we delve into the mysteries of the hive! A mere lifting of the cover of a hive, and we are transported into an enchanted city where our woes and cares are forbidden to enter. We wander through the fascinating streets, we draw into our nostrils the fragrance of perfumed treasures, we gaze

into golden enchanted palaces; and when we at length reluctantly depart, and the cover is replaced, we feel better, happier, and (may we say it?) purer for our little journey into the charmed city.

Beekeping with Italian bees in a double-walled chaff hive is the nearest approach to a non-worrying, joy-giving, business-relaxing hobby I can think of for a city man.

New York City.

AN AVERAGE OF 60 POUNDS PER COLONY, 100 FEET ABOVE THE SIDEWALK

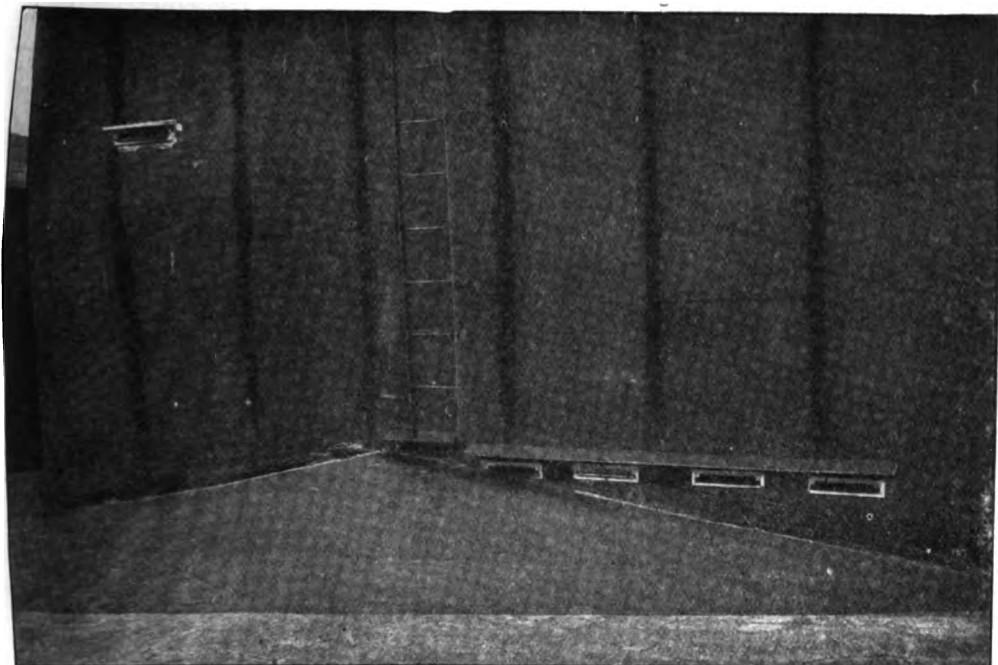
BY LEE ESSENHOWER

My bees are practically 100 feet from the sidewalk, on the roof of C. K. Whitner's department-store building. On May 25, 1911, this building was destroyed by fire, and in 121 days was rebuilt. At this time the thought struck me that the roof would be a good place for bees, and they were put there as an experiment. Last summer I took 360 lbs. of honey from six colonies, and built up the others so that now there are eleven colonies.

The hives are in the lower tank house, or the house where the pressure-tank is kept. There are, in fact, two tanks in operation—one simply a gravity tank and the other a

large iron tank 16 x 8 ft., under a pressure of compressed air of 80 lbs. pressure, holding 60,000 gallons of water, ready for any emergency. In this house the bees are kept. Strange to say, the water holds the temperature pretty even all the year round, and makes ideal winter quarters for the bees.

High winds, to some extent at least, decimate the colonies; but despite this fact we have all along secured good crops. The bees have about two miles to go before coming to any real pasture for surplus honey. Our pasture consists of melilotus mostly, though we have a great deal of linden along our



A view of the hive entrances on the other side of the tank house.

sidewalks; in fact, we have a good linden field. I wish to say in this connection that I was the main instigator in introducing the melilotus many years ago, when the country seemed to be in an uproar for fear that bee-

keepers were introducing an obnoxious weed; but still I kept silent, and continued to spread the seeds. I have been more or less interested in bee culture since 1877.

Reading, Pa.

A CITY MAN'S BEES PAY HIS TAXES

BY HARRIS T. KILLE

If any of the readers of GLEANINGS should ever have occasion to visit New Brunswick, N. J., and take a walk out on Jones Avenue, they would surely stop and take a second look when coming opposite the house owned by the subject of this sketch. It is as much different from the ordinary run of houses as a queen-bee is different from a drone; and if the reader should be so bold as to step upon the broad colonial porch and ring the door-bell he would find a man as different from the ordinary run of men as the house is different from the ordinary run of houses. Measured by linear or avoirdupois your host would not grade very high; but if you should apply to him the scale for the measurement of genius you would have to use more than your ordinary pocket-rule, and it would not make the result of your estimate any the less accurate if you shoved the decimal point over

three or four places to the right after you have made your most accurate calculations.

The name of this genius is Henry Mills. His business is that of stock jobber for railroads. But one might just as well call him a carpenter, blacksmith, mechanic, or what not. He's a veritable Jack of all trades; and if we call him by that name we can say that he lives in "the house that Jack built," for he built that neat house (Fig. 1) all himself, at odd times, without interfering with his regular work. He made his own cement blocks—made every thing, in fact, except the doors and windows. He has not quite finished it, but he has been living in it for more than a year, and he started to build it only two years and a half ago. He showed me over the house; and the rooms that are finished and furnished are certainly beautiful.

In the back yard, not fifty feet from a

neighbor on one side, and almost bordering the street on the other side, are his bees. He has 19 colonies. He made all his frames and hives himself. His hives are built much on the principle of the Danzenbaker, but have frames one inch deeper. "The bees," said he, "winter much better on these than they do on the standard Danzenbaker size, which is entirely too shallow for good wintering unless two stories are used. However, if I were starting in again," he continued, "I would use nothing but the standard ten-frame L. hive. Then if I wanted to sell out at any time I could get somewhere near the original cost of the hives."

To the question, whether his bees sting the neighbors, Mr. Mills replied, "I have never had any trouble from their stinging the neighbors, for I manage so as to do no work among them when they are gathering no honey, or when manipulation would be apt to enrage them. I have had, however, some trouble in the spring, because we invariably have warm days when the bees take their cleansing flights, even on Monday, wash-day. The neighbors at first thought that the spots on their clothes were caused by sparrows; but my mother told them that the bees were responsible, and ever since then I have had more or less trouble." Moral.—See that your truth-loving mother does not tell all she knows.

A product of Mr. Mills' genius, with which he seemed better pleased than he did with his make of hives, was a honey-extractor. He had made it practically himself, although he had to have a little assistance from a local blacksmith in making the gearing. For the tank he used an ash-can which, by reason of corrugated strips extending from the rim to the bottom at regular intervals about the outside, has much greater stability than many factory-made extractors. The revolving framework inside was built for service. It was made of iron straps 1



FIG. 1.—Home of Henry Mills, New Brunswick, N. J.

inch wide by $\frac{1}{4}$ thick. The photo, Fig. 2, shows the construction of the inside framework and comb-baskets. The gearing was also built for hard usage. If our manufacturers could combine the strength of this built-for-service extractor with the lightness, reversibility, and ease of running features of their extractors, we beekeepers would not have to deduct from 10 to 20 per cent for deterioration every year from our net earnings.

Although we do not have very severe winters here in New Jersey, Mr. Mills believes in giving his bees protection. As will be seen from Fig. 3, Mr. Mills' bees are located on a knoll overlooking the town. They receive the full force of the cold northwest winds which sweep over the town, so that it is only by packing his bees well that he is able to winter them successfully. He uses an outside winter-case made of unplaned half-inch lumber. This is so constructed that, when set down over the hives, it leaves an inch space all around the outside and extends two inches above the top of the hive. It is prevented from obstructing the entrance by the extension of the cleats on the bottom-board on which the hive-body rests. To the lower inside front edge of the case an inch strip is nailed the full length of the case. This prevents the sawdust and planer shavings (which he packs in the space between the hive and case) from obstructing the entrance. Around the lower edge of the other sides he wedges a layer of coarse shavings, on top of which he pours sawdust until the space is completely filled. Mr. Mills always leaves his excluders on



FIG. 2.—Henry Mills' home-made honey-extractor.

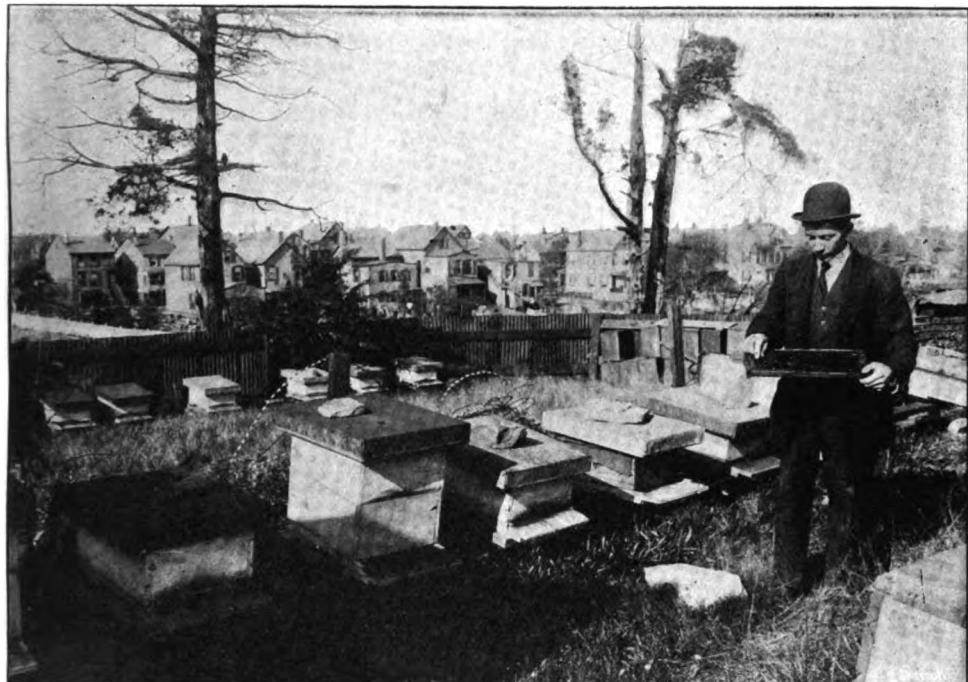


FIG. 3.—Mr. Mills' apiary on a knoll overlooking the town of New Brunswick, N. J.

top of the hives so as to give the bees space in which to pass from frame to frame, up over the cluster where it is warm. Over the excluder he spreads a burlap bag or enamel cloth, and fills in the two-inch space above with sawdust and planer shavings. Mr. Mills thus has the advantage of a double-walled hive for wintering, and at the same time has

his light single-walled hives for summer manipulations. His winter case is shown in Fig. 4.

Whenever Mr. Mills has had colonies light in stores he has fed them successfully during the winter by placing a slab of hard uncry stallized sugar candy a space above the brood-frames, and covering the same with burlap and sawdust to retain the heat of the cluster.

To the question as to how much his bees paid him, Mr. Mills replied, "It varies with the season. Some years the bees do surprisingly well, while other years they don't store much surplus. I don't have a very good location here, for the bees get practically nothing from clover. However, I can usually count on a fall flow of dark honey. This dark honey sells here among my neighbors just as well as the best clover honey—in fact, better; for

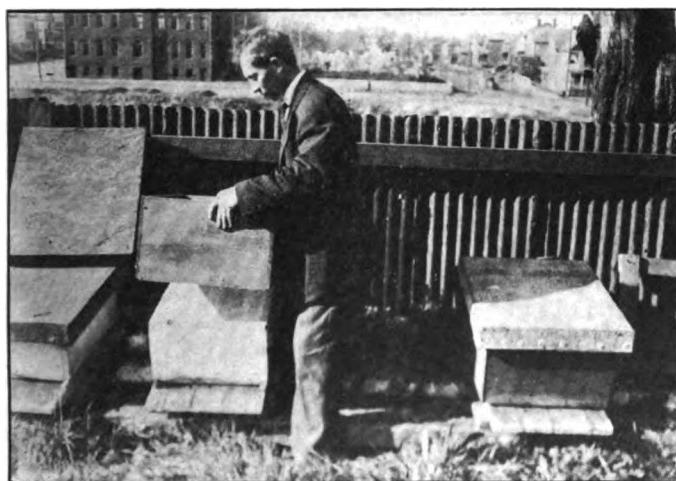


FIG. 4.—Winter case for holding packing material around regular single-walled hives.

one year I had enough clover honey to sell, and the customers came back stating that they wanted some of that black thick honey such as I sold them last year. But, even though I have not as good a location as some," he continued, "I manage to get enough from the bees to pay my taxes. My taxes amount to over \$40. I always lay my

honey money aside for that purpose. Every year I have enough to pay my taxes, and some years I have considerable left over." Not so bad, I thought, for a city man who keeps bees for the fun and recreation he gets out of the business rather than for the financial gain.

New Brunswick, N. J.

OVER TWO TONS OF HONEY A YEAR FROM A CITY APIARY

BY GEORGE ZAUTNER

[Another picture of our correspondent's apiary appeared on the cover of our Oct. 1st issue.—Ed.]

I have been interested in beekeeping ever since I was a little boy, though we have always lived in the city. My father bought his first hive of bees about 42 years ago. When he built his home it was on the outskirts; but now the city has grown so large that it extends a mile or more beyond us. I always helped father when he was working with the bees, and I became very much interested in them. The first comb honey we produced was in a square box that held about five or six pounds of honey, with glass on two sides. In those days we were satisfied if we got two or three such boxes from each hive. Now all is different. The improvements in beekeeping are something wonderful. We now have the modern hives and all the necessary equipment for up-to-date beekeeping.

The honey season is very short in this section. It begins about June 15 and ends about July 20. We never get any surplus from fruit-bloom. The bees use for brood-rearing what they get from that source. We depend on clover for our crop. When the clover is gone, that ends the season. So you can see we have to get our bees in prime condition by June 15.

We have two large city parks quite near us, and I think we get most of our honey from that source.

We must give our bees the best of care in order to get them in condition for the honey-flow. In early May, when a queen has her hive well filled with brood and bees I open the hive, put her with a frame of brood in another hive, filling the rest of the space with drawn combs, and set it on top of the other hive without an excluder. In three or four weeks I have two hive-bodies filled with bees and brood.

About June 15 I take eight of the best frames of brood and the queen, and put them below with an excluder on top to keep the queen below. Then I put on the first super and set the other hive-body of brood on top. This makes the upper hive queenless, and

the bees will start queen-cells every time. But in five or six days I open the upper hive and cut out every queen-cell. This operation will keep the bees from swarming for the present. When the first super is about half filled I put another one under the first one so as to give them plenty of room to work.

In about fifteen days from the time I put the first super on I take off the upper brood-nest and set it on a new stand. Most of the brood will have hatched by this time. I leave it on the new stand for a day or two, when all the field bees will have flown back to the old hive. A splendid way to make increase is to give this hive a young queen. Or it may be set on top of another hive that is run for extracted honey.

In order to produce fancy section honey one must have his hives overflowing with bees. All our queens' wings are clipped. If a swarm comes out the queen will drop in front of the hive in the grass (I keep the grass short to prevent the queen from getting lost). I cage her in a wire cage made for that purpose, remove the hive to the rear, and put an empty one in its place. Then I place the queen in the cage on the alighting-board of the empty hive. When the bees in the air discover their queen is not with them they come back, looking for her. When sufficient bees come back to protect her I release the queen, when she will run in the hive, and all the bees follow her. Toward evening I open the hive that the swarm issued from, and cut out all queen-cells. I then set the swarm to one side and put the hive that the swarm issued from on its old stand, shaking the swarm back in front of the hive that it came from—bees, queen, and all. After this I add another super to give them more room. This operation of cutting out the queen-cells and shaking the swarm back takes only about ten or fifteen minutes. The next morning, before the bees begin to fly, I set the hive on a new



Home and apiary of Geo. Zasutner, Albany, N. Y. Though located right in the city, the bees practically paid for the house shown.

stand in a different part of the yard. This seems to satisfy them.

We have no trouble with our bees stinging the neighbors. When bees are cross, and are inclined to sting, I believe it is due to rough handling more than any thing else.

Our average crop of honey is about 4200 lbs., and the average number of hives 65. I find ready sale for all the honey we can produce. We never have enough to supply the demand.

Beekeeping is only a side issue with me. I work in the shop every day, and take care of my bees in my spare time. I also have quite a large garden. We raise all our own vegetables and all the fruit we can make use of and to spare.

Beekeeping goes a long way toward reducing the cost of living. The home shown in the picture has practically been paid for with the proceeds from my bees.

Albany, N. Y.

HOW I BECAME AN OUTLAW

BY THE OUTLAW

This is *sub rosa*, you understand—just between you and me. The fact is, I am a beekeeper. As being a beekeeper is not a crime *per se*, I shall have to explain further that there is a certain city ordinance in force here to the effect that no bees are to be kept within the bounds of the city. The ordinance is, in effect, as follows:

Be it ordained by the common council that it is hereby declared to be unlawful for any person or persons to conduct or carry on the business of rais-

ing or producing honey from bees or keep or maintain an apiary or any hive or hives of bees, within any portion of the city.

That any person violating any provision of this ordinance shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be punished with a fine not to exceed \$200, or by imprisonment in the city jail for not exceeding one hundred days, or by both such fine and imprisonment.

But I did not become a beekeeper and violator of the city ordinance with malice aforethought—no, nothing like that. I am

just a victim of circumstances, merely doing that which has been decreed by fate.

It happened this way: One Sunday morning, about the first of June, I encountered a small after-swarm of bees in the act of settling on the branch of a pepper-tree in front of the house that constitutes my domicil. Under such circumstances what could I do but hive the swarm? It would certainly not be right to leave a swarm of bees hanging on the branch of a tree, above the sidewalk of one of the principal streets of the city. The hiving was easily done with the aid of a borrowed clothes-pole, and on the end of this pole was attached a small basket.

Just think of it! walking along the street with my mind busy on matters that would come up in the office on the morrow, and then, ten minutes later, walking along the same street with a swarm of bees in a basket! The basket of bees was duly hung on the clothes-line, while I proceeded to alter into a hive a certain box which the grocer had delivered with groceries the evening before.

The alterations of the box sufficient for the time being took about ten minutes. The bees were then dumped into the hive, and the next moment I found myself the owner of a colony of bees, and also the violator of a certain city ordinance, and subject to a fine or a jail sentence, or both.

But before taking up with you my experience as an outlaw it might be well to lay the foundation for my acts. But remember I am telling you this biographical junk so that you will be in the proper frame of mind to understand and follow me through my acts as a practical outlaw beekeeper, working under an adverse city ordinance. That is my honest reason. Of course, if you in your own narrow-minded way think it mere *ego* on my part—why, I will not quarrel with you—just let you retain your opinion, and risk your calling up the chief of police.

To commence at the beginning, early environment forged the first link by reason of my father being an apiarist on a city lot. Stings were part of my early education. Then the wanderlust claimed me, with the result that one bright summer day, following the termination of the American occupancy of Cuba, I stepped ashore at Havana, and there among that band of pioneer beekeepers who followed the army of intervention I met the greatest of them all, the "Rambler."* Rambler was one of nature's aristocracy. He was a man who cared little for money and less for dress. He always

associated the idea of a new suit of clothing with a ten-dollar bill. But as a man he stood the acid test. He was one who saw through every sham of life; smiled quietly at the various subterfuges and artifices which he encountered in others and ever remained as a nugget of pure gold among the pebbles. By reason of his rambles and observations, coupled with an inventive turn of mind, the result was that his brain had become a storehouse of those little matters generally spoken of as kinks. And while he had for years freely given his ideas to the beekeeping world through GLEANINGS, yet when he breathed his last there in the lee of Principe Hill, apiculture lost a thousand thoughts that were on record only in Rambler's brain.

Then there were the months I spent in the locality of where was situated the first apiary of bees in frame hives located on the island. I wonder how many of those who read this have been on the spot. How many, like myself, have cut their names in the trunk of that old royal palm-tree just above the well? For several years I led an ambulatory existence, to and from, over and around, the island of Cuba, at that time the greatest bee country in the world.

So, now, having turned for your inspection the foregoing page of the past, I trust that all those who are true apiarists at heart will understand and forgive my acts as an outlaw.

In answer to those who raise the question as to why I did not remove my colony of bees outside the jurisdiction of the ordinance, I will say that on one side of the city is the ocean and on the other is the desert; that the past season has been one when the desert flora refused to yield honey, with the result that, during all the time when I have had my colony of bees, the apiarists outside the city have had to practice feeding in order to keep their bees alive. Here in the city, matters are different. There is an abundance of pepper-trees and eucalyptus along the streets of the residence district, and in the public parks are thousands of eucalyptus of every variety besides thousands of other trees and shrubs. So here there is a continuous flow of honey, somewhat similar to the summer in western Cuba. The result has been that my little swarm of bees, without foundation, not even for starters, has been able to build on an average one frame each week.

Perhaps the question may arise in the minds of some as to the legality of the city ordinance under which I am an outlaw. To such I will state that it is my own personal opinion that the ordinance is valid; that the courts would sustain it under what is known

* J. H. Martin, who was one of our most valued correspondents about 15 years ago.—ED.



H. C. Young's apiary in the country, 15 miles from Buffalo.

in law as the police power. As most bee-keepers are not lawyers, I will say that what is known in law as the police power is the internal regulations of a State that have in view the preservation of good order, good health, good manners and morals, and the general health of the public. Chief Justice Shaw, of the Supreme Court of the United States, in the slaughter-house cases, stated "That upon it depends the security of social order, the life and health of the citizens, the comfort of the existence in a thickly populated community, the enjoyment of private and social life, and the beneficial use of property. Police power, as defined by Blackstone, is 'the due regulation of domestic order of the kingdom, whereby the inhabitants of a state, like members of a well-governed family, are bound to conform their general behavior to the rule of propriety, good neighborhood, and good manners, and to be decent, industrious, and inoffensive in their respective stations; that by the general police power of a state, persons and property are subject to all kinds of restraint and burdens in order to secure the general comfort, health, and prosperity of the state.'"

The courts of the various States and of the United States have continually sustained and upheld legislation that was enacted for the public welfare, health, or comfort, even though such legislation worked injury or

inconvenience to innocent parties, even though it violated some organic law, holding that such legislation was valid under the police power of the State. For example, the constitution of the United States provides that full faith and credit shall be given by the various States to the laws of the sister States. Very well; in Illinois is a statute that provides conditions under which a person can practice medicine. A doctor, after complying with the laws of Illinois, in going to California, for instance, will there find that California pays no attention to the law regulating physicians to practice, and requires that an examination be taken; and, believe me, it is some examination—in fact, such that very few physicians care to take it. But the California courts hold that such legislation, even though it is prohibitive, as in effect it prohibits the Chicago doctor from practicing medicine in Dogtown, is valid under the police power, as it tends to protect the general public from inefficient doctors.

So, under the circumstances, I have no defense to offer, as I do not think a valid defense exists. I am just like any other educated lawbreaker. Being fully aware of the position occupied in society, I take every precaution to avoid being caught in the toils of the law that is being willfully broken.

To be continued.

OVER 200 POUNDS OF SURPLUS HONEY PRODUCED BY ONE COLONY ON A VERANDA IN THE CITY OF BUFFALO

BY H. C. YOUNG

Having had no experience in keeping bees—in fact, never having had a good look at a bee, I started to read GLEANINGS in October, 1911, and studied the A B C and X Y Z of Bee Culture. The following spring, in May, I received my beginner's outfit, consisting of one hive of bees, extra hive, etc.

As I live on a corner of a prominent business street in Buffalo, I decided to keep my bees on the veranda on the second floor of my home, which is very close to the sidewalk. Hundreds of people pass daily, and thousands of bees fly overhead.

Without the aid of an experienced bee-man or any one else, I would open the hive three or four times a week or oftener, without the use of a smoker, veil, or gloves, and pull out frame after frame. I had no difficulty in picking out the queen, drones, and workers; also the drone and worker cells, and later I discovered the queen-cells.

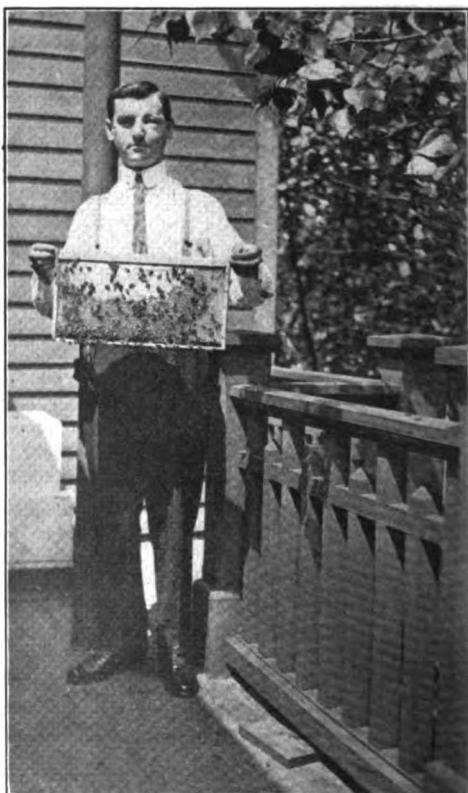
About 11:30 A. M. on the 4th of July my bees swarmed, clustering on a poplar-tree about 25 feet from the hive, and they remained there until about 2 P. M. With the aid of my three brothers we set out to hive the swarm. Imagine the crowd of curious city people attracted by this undertaking. Our first thought was to cut down the branch with the cluster and place it before the empty hive. Not thinking about the weight of the bees, we began sawing, and soon there was an unexpected cracking noise, and the branch snapped off, throwing the cluster of bees to the pavement, about twenty feet below. In a few seconds the air, like a blinding snowstorm, was filled with live bees. The terror-stricken people scattered, and ran in all directions for shelter. In order to convince them that there was no danger I hurried to the street with head and arms bare, scooped up the bees in my hand, and shook them into the hive without receiving a sting. Soon the frightened ones regained their nerve and returned to satisfy their curiosity.

About a week later I found a new queen in the old hive, which evidently became mated with a black drone. I soon noticed the difference in the disposition of her bees, as photo No. 1 will show. The old queen and her bees in the swarm have maintained their very mild disposition to the present day.

The following spring, May, 1913, I purchased five more colonies. I kept one colony

in the city and sent all the rest to the country, about fifteen miles away. Starting that year with seven colonies, and with the capture of one stray swarm in the city, I increased my apiary to fifteen colonies during the summer, and secured about 500 lbs. of honey.

From my limited observation I am led to believe that a few colonies do better in the city than in the country. During a drouth bees find little or no nectar in the plants of the meadow or mead; while the warmer, the drier, and the more arid the weather, the more the city folks sprinkle their gardens and lawns, thus keeping the honey-flow normal. I noticed during last summer, while we had a long drouth, the bees in the country were not gathering any honey, while those in the city during the same dry weather were busy working filling up cells day



H. C. Young, of Buffalo, N. Y., showing the result of his first experience with hybrid bees.

after day. This one colony in the city produced a surplus of over 200 lbs., which was nearly half of my entire crop.

I desire to impress upon your readers that, far beyond the profits arising out of my short experience in bee culture, I have

had pleasure of the highest order. The bee is one of God's most remarkable creatures, and a study of it has enlightened me as to his vast wisdom, and will, I trust, make me a better if not a greater man.

Buffalo, N. Y.

A HOUSE APIARY FOR CITY BEEKEEPERS

BY C. S. NEWSOM

The photograph shows my house apiary, every one of the sixty colonies which it contains being within 4 feet of my work-bench in the center. When the picture was taken I neglected to open the doors in each side. After building the house I sawed out large openings and put hinges to the doors which swing upward. The doors are held up by a two-foot stick with a screw-eye in the end, engaging with another one in the door. All these openings make considerable light; and any bees inside soon disappear through them. The cupola is also arranged for large openings for still more light if needed.

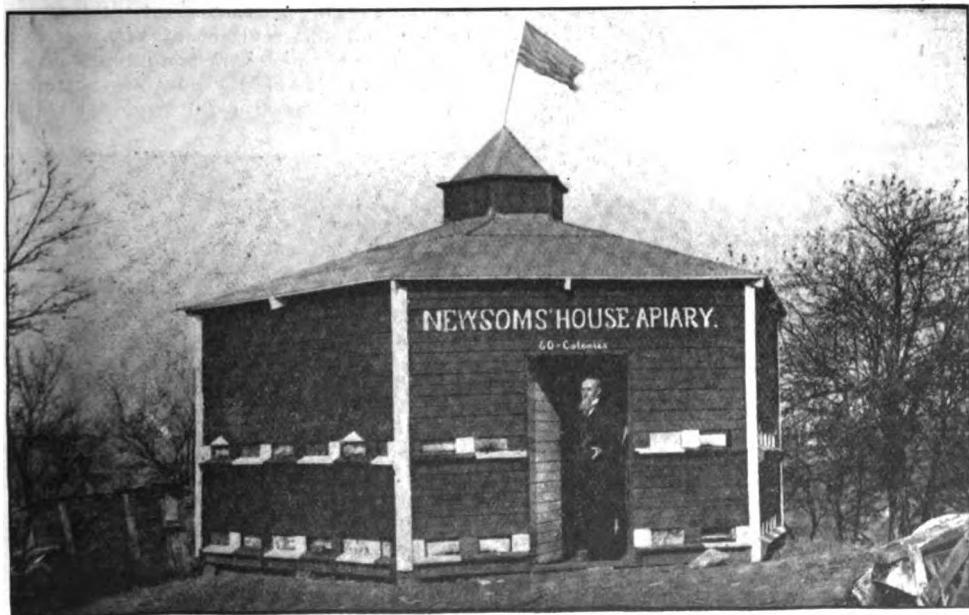
When my bees hang out in front of the hive as they did in the sweltering sun last season, I propose scooping them into hives of comb foundation with a frame of brood added, and a queen; and those scooped will be darkened in the house a day or so; then the hive will be set up on the frame for my new swarms. Then I shall have a new swarm, and the old hive not molested nor

even disturbed, and the work will go right on. The bees that cluster on the outside of the hive are mostly young ones hardly able to fly, and they can just as well have more room and a chance to do something. I think the plan will retard swarming. Hereafter at the close of the season I do not expect to have a great lot of unfinished and uncapped sections. The bees can work at night in the warm room. Breeding will also begin earlier in the spring, and will keep up later in the fall, insuring strong colonies.

The wall of the building around each entrance is painted a different color to enable the queen or the bees to return to the right entrance.

Athens, Ohio.

[While house apiaries are used considerably in Germany and other parts of Europe, especially where outdoor room is scarce, they have been abandoned largely in this country, chiefly on account of the expense.



C. S. Newsom's house apiary located in the city of Athens, Ohio.

There is no other great objection, provided there are suitable openings in the side which will give sufficient light for finding queens, say, and for permitting any bees that have the combs, when they are being looked over, to get outdoors at once.

In our opinion, scooping up bees that

cluster outside because of the heat or over-crowded condition of the hive, and forming a new colony with them, would give rather uncertain results. We think it would be much better to make the increase in some other way, for the cluster outside may be composed of field bees largely.—ED.]

A DRUGGIST'S EXPERIENCE WITH BEES IN INDIANAPOLIS

BY H. D. HOPKINS

I am one of the many who have the bee fever, and I have had it for about 18 years. I keep my bees in the central part of the city in a thickly settled district within half a block of a schoolhouse. Occasionally I loan the teacher's my observation hive to teach the children the habits and industry of the bee.

I always winter about five colonies on their summer stands well covered with leaves, and protected by a shed. I have

The bees also object to the lawn-mower next door, and sting the man or lady behind it, so that requires more honey to keep peace with my neighbors.

Last year I sold the increase, which was six colonies. I took off 120 lbs. of No. 1 white-clover honey. I have no trouble in disposing of it among my neighbors at 20 cts. I should like to keep more bees; but there is not enough pasture in the city for them. I have tried chickens and pigeons; but for real pleasure, profit, and little work, give me bees.

AN OLD-FASHIONED BEE-GUM REMODELED.

While visiting my brother's apiary this summer in Putnam County I found an old abandoned bee-gum. I requested him to send it to me, for I thought it would be a curiosity. After it reached me I decided to modernize it, so I made six brood-frames to fit and hang on tin brackets. I cut down an eight-frame super to hold three of the D section cases. The frames and sections can be removed and replaced at any time. I covered the log with bark and gave it a roof of bark, so I think I have quite an ornamental as well as a useful hive. It stands



H. D. Hopkins' ornamental
hive for a city lot.

never had a winter loss.

I am a druggist, and have little time to look after the bees; but I enjoy keeping them for the recreation. I have a neighbor three doors below whom they bother a little by making use of her well-spout for a drinking-fountain. They have to pump out the bees before they get water. I make my peace with them when I take off the honey.



Cover and super removed, showing the combs in the brood-chamber.

4 feet high, and has an 18-inch brood-chamber 12 inches wide in the center.

Indianapolis, Ind.

[It is true that bees kept in a city are sometimes troublesome about outdoor pumps or watering-troughs. This trouble may be partially prevented by providing

water close by, for they must have it at times. Adding some salt to the water often helps, as the bees seem to prefer it for some reason. At times it is also very important to place artificial pollen where the bees can get it, to keep them away from nearby barns, etc.—ED.]



F. A. Connor's jumbo hives in Worcester, Mass.

JUMBO-DEPTH HIVES FOR CITY BEEKEEPING

BY F. A. CONNOR

My small apiary of Carniolan bees is located in the suburbs of this city. I am a great advocate of jumbo hives. The picture shows my extracting hives. I might mention that these hives consist of two regular dovetailed jumbo bodies, Hoffman 11½-inch-deep frames, metal-roofed covers, Danzenbaker bottoms. I have found, after an experience of about 20 years as a bee-keeper, that this is the ideal hive for extracting, especially with Carniolans.

I am constantly meeting with severe criticism when I advocate this style of hive; but there are several important advantages in using this hive. One can adopt the jumbo hive and still keep on using the standard Langstroth ten-frame hives and supers. In my judgment it is of great importance to have a hive which standard supers and cov-

ers will fit, and one adapted to bottom-boards. The queen rarely goes out of the chamber she is in, as the brood-chamber is of sufficient capacity for the most prolific queens; hence queen-excluders are not necessary. As a non-swarmer, or practically so, when operated for extracted honey, I have found this hive the best I have ever used.

Possibly I have given too much praise to this hive; but let me say here that one should study his locality very carefully before deciding on what size of hive to adopt as his standard.

In this locality bees are unable to gather nectar for more than six months in the year, and colonies must necessarily be kept strong throughout the season.

Worcester, Mass.

BEEKEEPING FROM A CARTOONIST'S VIEW POINT

BY J. H. DONAHEY

[The writer of the following is the cartoonist of the Cleveland *Plain Dealer*, who, as we mentioned editorially in our Dec. 1st issue, is an enthusiastic beekeeper. Mr. Donahey is in Egypt at present; but when he returns he is going to furnish GLEANINGS some cartoons depicting the joys and sorrows of the beekeeper. A more extended notice of these will appear later.—ED.]

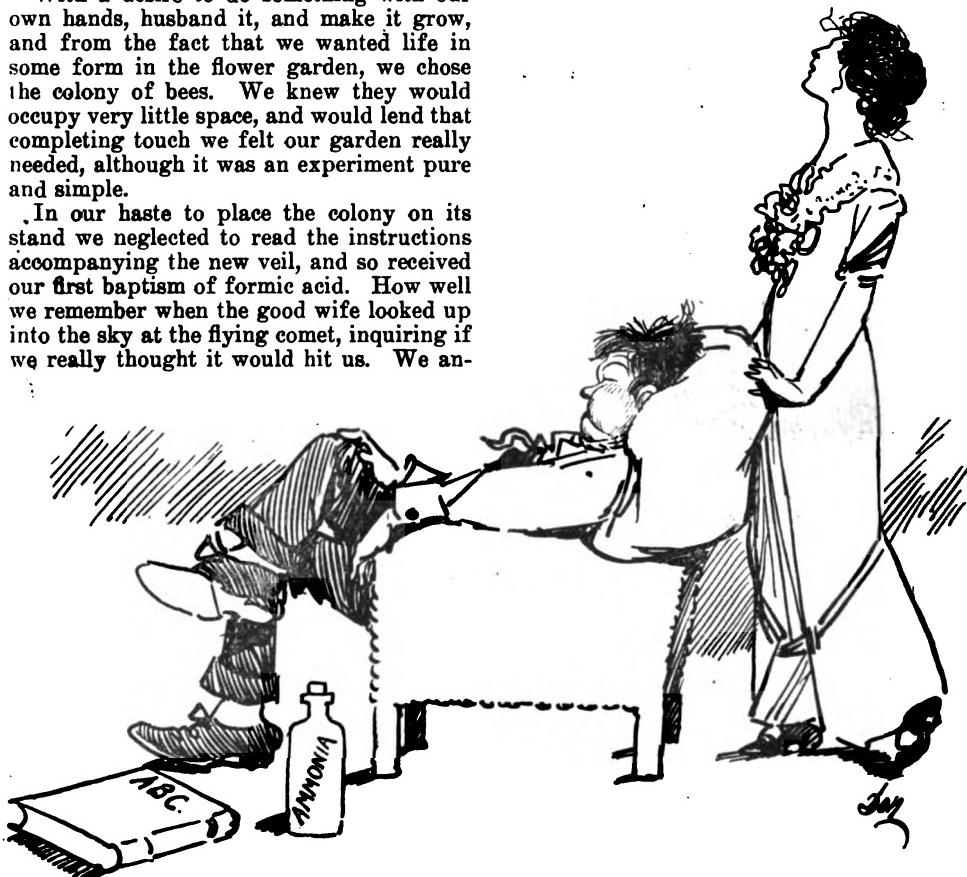
Three years ago, on the evening that Halley's comet was supposed to strike the earth and demolish us, our first colony of bees arrived. They were hybrids, very cross, and in a single-walled eight-frame hive. We had never kept bees before, and knew practically nothing about their care beyond a faint memory of the old-fashioned box hive that used to stand under the apple-tree in the country village.

With a desire to do something with our own hands, husband it, and make it grow, and from the fact that we wanted life in some form in the flower garden, we chose the colony of bees. We knew they would occupy very little space, and would lend that completing touch we felt our garden really needed, although it was an experiment pure and simple.

In our haste to place the colony on its stand we neglected to read the instructions accompanying the new veil, and so received our first baptism of formic acid. How well we remember when the good wife looked up into the sky at the flying comet, inquiring if we really thought it would hit us. We an-

far greater than we had ever hoped or dreamed.

The next year, during our absence, a colony concluded to swarm. Mrs. Donahey, who had never handled bees, tried a new trick, and one we had never heard of before. Knowing we could not get home in time to hive them, she secured the lawn hose lying near, and, turning on the water, directed the stream on the bees as they were pouring out



We did not care one whit whether it did or not.

swered that we did not care one whit whether it did or not.

We have had many enjoyable experiences, and have had to hasten to our volume of the A B C and X Y Z of Bee Culture very often; but with it all we have found a pleasure

of the entrance. She explained later that she had read somewhere that bees do not swarm when it rains, and she concluded to try a summer shower on them. They went back into their hive that day, but they did it all over the next morning, but we were

there to put them right into their new home. Our first hive, after being requeened with an Italian, has grown to fourteen, and last season we took off one thousand pounds of very fine comb honey, and the clover secretion was as white as any we have ever seen produced in the country.

The bees are kept in the double-walled Buckeye hive, and are wintered out of doors. They are on the side of a hill that is covered with some timber overlooking a stream, facing the southeast, and in the rear of our home. The little workers come and go all day long without our neighbors ever knowing they are there, unless we by chance present them with a toothsome bit of honey, or invite them over to inspect the busy homes.

To the city man or woman who loves nature, and who has but a small back yard, the bee offers many advantages over any

other form of outdoor amusement or recreation for profit. We know of no occupation better adapted as a diversion to any one who deals in the abstract. The little bits of wisdom picked up from the insect world, the messages they bring as their tired little wings carry them in from the fields laden with honey, the lessons they teach us in their patience and perseverance, all tend to create a stronger feeling and a better love for our fellow-man, to say nothing of the dividends received in golden nectar.

We have learned many things from the bees, and look forward to the time when we shall understand them better; for we long ago gave up hope of ever getting them to understand us. But the knowledge we have already acquired is far greater than we expected to attain in one small back lot in the city.

Cleveland, Ohio.

BEEKEEPING A SIDE LINE AND FOR THE FUN OF THE THING

Read before the Second Annual Convention of the Iowa Beekeepers' Association at Des Moines, Iowa, December 11, 1913, by Hamlin B. Miller, Marshalltown, Iowa.

My subject to-day is of such a nature, and my beekeeping experience of so short a duration, that I must confine myself to personal experiences more or less, in order to make my remarks of sufficient length and interest. I don't presume in this effort to teach you old-time beekeepers any thing. I am just going to be satisfied if I can only entertain you a little, and perhaps take you back to your beekeeping youth.

It tickles me every time I think of the funny things I have read in Dr. Miller's "Fifty Years Among the Bees." I am not related to Dr. Miller, the pioneer beeman, that I know of; but I have experienced some of his early and peculiar symptoms of bee troubles in my own bee-work infancy. I often congratulate myself upon the fortunate escapes I several times have already made, and fully appreciate the many hints and experiences that others have given in the bee-journals that have helped me to avoid many pitfalls and needless humiliations that I otherwise would have fallen heir to in spite of my already fast accumulating experiences in bee culture or "bee smartness." Right here I do not wish to forget to mention that I owe the greater part of my bee knowledge to the bright, up-to-date, and resourceful bee-journals.

After I really started, I was going some. I couldn't stop long enough to eat my meals. My physician had ordered me to go on a diet. I even overworked that. I fasted. I

didn't eat at all, seemingly, and soon lost thirty-five pounds of flesh with my fasting and "bee fever." But then, it did me good —have regained part of my flesh, but have never been able to break the fever.

Now, every man has (or at least should have) a hobby. Some think a hobby means chasing a golf-ball for hours over a forty-acre field. Others think it is to travel on foot twenty miles or more over the roughest localities, carrying a heavy gun and ammunition, just to get a chance to see a flock of ducks too far away even to hear a gun.

My physician having ordered me to stay out of the printing-office, adding that I must rest from the nervous strain I was carrying, I immediately landed on my neglected lawn with a lawn-mower, a rake, and a spade. It was fun—never had really enjoyed it before, because I did not know I possessed another talent besides the acquired printing-office habit. Then my wife also landed on me for flower-beds and various other yard improvements. It just seemed as though she would sidetrack my hobby for hers, she was so industrious about it; but I was too far gone to lose out on the bees.

While all these new-found pleasures were becoming settled upon me, a new neighbor in the meantime had moved in next to me, and he had two colonies of bees. I was just a

* On account of our lack of space in this special number we have not been able to use quite all of the paper.—ED.

little bit leary of the pesky things, for the sight of a bee had always affected me just the same as it does the majority of mankind. I was never unprepared to make my getaway.

It wasn't long before my neighbor was making an awful smudge and monkeying with those bees. By tip-toeing around and peeking over, I saw it all. Standing on somewhat higher ground I was astonished as I beheld him actually putting his hands down in that hive, *right among those bees*. The cold chills ran relay races up and down my nervous body as I watched him lift out the frames covered with the yellow-banded fellows and dozens of them running over his hands. "Hello! George! What are you doing?" I asked, in as calm and possessed a manner as I could muster up. Without lifting his eyes he said, "I'm trying to see what these little fellows are doing."

His calm answer and the seemingly indifferent manner with which he turned those frames of comb and bees over and around, all the while critically examining them, captivated me, and *I was stung with the "bee fever."* May be you think it strange; but the fever has not yet abated.

Well, my confidence soon grew bolder, and I was finally near enough to peek over into the hive. *Wonderful! delightful! entrancing!*

But, horrors! He asked me to hold a frame for him while he did something or other that needed attention. My nervous chills immediately changed to "shiverinos." My teeth would have chattered themselves loose had I not set my jaws firmly together; and (would you believe it?) when some of those varmints ventured to run over my hands the water seemed to ooze off from me in a manner that would put a Turkish bath to shame. After it was all over I went home, weak as a cat, and lay down to ruminant, resuscitate, and recover, for I had experienced a drenching equal to any Turkish bath I have ever had administered to me.

I couldn't rest. I wanted some bees; and their not stinging me was one of the best reasons I should have them; and then, again, I had never before in all my life had enough honey to eat.

My neighbor was Mr. George Belt. I asked him to find me some bees. He did. We soon became fast friends, just because we had found true pleasure in the same hobby. My wife soon called me "nutty." George and I were both fatally afflicted with the malady. Many an hour we ruminated on the possibilities and the pleasures we had discovered in the yellow-banded friends,

growing more "nutty," every day. Ever after we hailed each other as "George B." and "Hamlin B."

I soon secured three colonies, brought in from the country in home-made hives. Gee! but I was afraid of them just the same. Setting them on boxes in the back yard I carefully pulled off one of the cleats that kept them in the hives, and ran away to a safe distance. They were so overjoyed at the fresh air I had let in that the whole yard seemed to be full of bees and their music, which I did not understand, as they played in and out of the hive. As soon as their enthusiasm had waned I stole up and liberated another hive. Now, "George B." did not see this or he would have laughed.

My wife also became interested at this juncture, and began handing out advice as to how I should conduct myself and manage the newly acquired backyard friends. Many have been the fool things we thought of and experienced during the past three years.

This was in the fall of the year, and I put those three stands in the cellar, and *shut the cellar up tight* from the air as well as light. Every time I went down cellar I hurried out again. My wife always made me go down for vegetables and canned fruit. I had to be bold, of course, but I was really afraid, just the same. The bees would come out and fly around. The floor was becoming thickly covered with them. I was awfully worried. I knew they would all be dead on the floor before spring. They got so noisy at times, and so bold, that I put off taking them out of doors until after the middle of the following April; and when I did grow bold enough to do so I had another case of chills; for while carrying out the second and third hives the other bees took especial delight in settling on me as the most likely object and place in the whole back yard to rest, and they actually turned my hat and clothes into a brown spring suit. It made me somewhat disgusted; but my wife wisely remarked, "You can't expect much else from bees." She knew all about it, of course. Well, there were less than one million bees in those three hives after all had died in the cellar that wanted to die there.

We harvested (or, rather, stole) sixteen pounds of bulk honey from one of these colonies that fall, but had to feed two colonies all winter. The other colony fell dead on the hive bottom three days before I put the others out the following spring—starved, of course. "Fool trick," my wife said. "I know it," was my response. I pined for thirty days—never felt more uncomfortable in all my life, for I really thought they had

enough to live on until it was time to put them out.

Things began to go better. I had six strong colonies the next fall. Took out 150 nice sections of honey. I ate honey all winter and sold the rest at 25 cents a section.

I wintered the six colonies perfectly. I had a thermometer in the cellar, and kept the cellar windows open nearly all the time, but darkened the opening with a long heavy curtain. I discovered that every thing else also kept better in the cellar with the temperature around 45 degrees.

During the past summer I increased to eleven colonies. Lost two of my queens, and then consolidated three stands into one, leaving me nine. I'll tell you how it was. The colony that had up to this time made me 108 sections of fine honey did not swarm until the last day of June. I was lounging in the yard swing, watching half a bushel or so of the tenants hanging on the front of the hive, when all at once they came out of that hive like a cloud rose in the air, and left like a roaring tornado. I was mad. I never before had had nerve enough to clip a queen. My wife was excited also. More advice was given me as to how I could have prevented such a blunder. I got out my tools, jerked the supers off from that hive, and found the queen. I think now she was a virgin. Then I slipped the scissors under her wing and clipped her; also clipped the queen of another colony that had just swarmed. After it was all finished, I repented what I had done, as my book knowledge had then had time enough to soak through and leak out, and I realized what I probably had done. The next day I found one of those clipped queens balled on the front steps of the next-door hive. I sprinkled water on the ball. She emerged and ran into that hive before I had time to stop her. Something happened to that colony as it became queenless. So did the other hive where I had clipped the queen. I don't know about the colony with the runaway swarm. They kept on working. But I do not know yet whether it still has a queen. I presume I shall find out next spring—another fool notion, I suppose. I presume my wife will tell me about it at that time.

I harvested 247 nice sections of honey that year, much of it No. 1 fancy, and all selling at 25 cts. per cake. I weighed ten sections that I sold to one party for \$2.50, and the scales showed ten pounds and four ounces—25 cts. per pound, you see, and the customer wanted more.

If there ever was a hobby to get a man's mind off from every thing else, *the bee is it*. They say fish and cabbage are foods for the brain. Well, I do believe the bees are the emergency brakes in cases of overwork and brain-fag. I have wasted thirty-five years of pleasure and fun, as well as profit and better health, by not having discovered the interesting and industrious bee as my friend.

There would not be so many broken-down business and professional men if they had taken time to become interested in a few colonies of bees. I also believe the outdoor treatment of bee culture, taken early in life by the average individual, would eliminate many cases of the white plague commonly called tuberculosis, not to mention other ailments that the outdoor life would benefit.

God made the bees for us. He has heralded the praises of honey in the book of holy writ. Man makes sugar and molasses by chemical processes. The bees make honey by the process provided by God himself, who never patented the process, and never has changed, nor invented a better way than he started the bee out with at the beginning, notwithstanding all the theories that Dr. Bonney and the many other wise and learned fellows are continually contending about in their endeavors to make over the bee and its habits.

Do you know I have learned to appreciate and love, more and more, God's outdoors since I got this bee trouble? I had never seen the sun rise since I was a little boy on the farm until the bees gave me the morning boost. I have got so I can't successfully night-hawk it any more, and neither can I lie in bed in the morning while the bees are out and at it. But I have never been able to get out so early but that I have seen them coming home as well as going out.

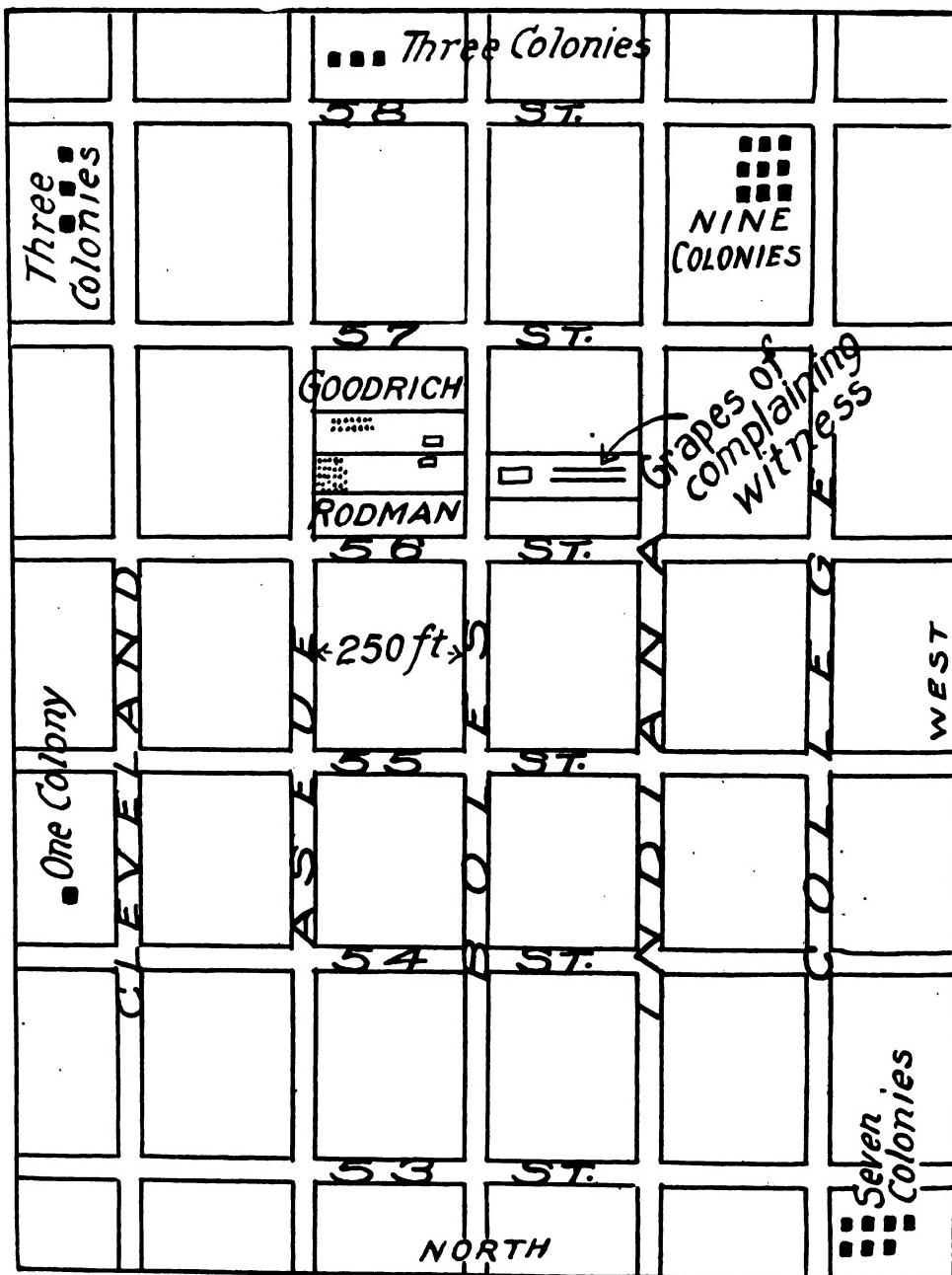
My health is better, I feel better, and really am better, because I have learned to love the bees.

ARRESTED FOR KEEPING BEES

BY A. T. RODMAN

I have decided to tell my troubles to the readers of GLEANINGS. During the summer of 1912 my neighbors across the street informed us that our bees were destroying their grapes. The facts were that we had

had a dry season just as the grapes were maturing, and then, just as the grapes ripened, a heavy rain. This caused a rush of sap into the grapes: and as the skins had been hardened by the dry weather they



Map of the part of the city in which the trouble arose.

burst open. The results were that the bees commenced to hull them out. We explained to our neighbor the cause of the trouble, and told him to pick his grapes at once.

The season of 1913 was different. It was

drier than the season before, and there was a scarcity of insects for the birds. This caused them to turn to the ripening fruits for food. My neighbor again complained about the bees. I told him that, if he would keep the birds away from his fruit, the bees

would not be there. You see I had been watching the birds feeding on his grapes before he was out of bed. However, he came over one Sunday to inform me that he was going to make a test case of it, and intended to swear out a warrant for me the next day. I tried to reason with him, and took him to see my grapes. I also read of several cases to him as published in the A B C and X Y Z of Bee Culture. I also told him that he would likely beat me in police court, but I would defeat him in the end in a higher court. Before he left he said he was going to leave it to somebody else to prove that bees damaged fruit, and that he was going to drop it. I thought the trouble settled, and invited him over again.

Contrary to his promise he went the next morning and swore out a warrant for my arrest. He also put out sweetened water and scalded the bees, and poured coal oil on them and killed them in every way possible. I notified the humane officer, and he put a stop to the slaughter at once. However, he swore on the stand that he had killed half a peck of bees. They also made a pretense of being afraid of the bees. This caused me to have some pictures taken to show that bees do not sting when in search of food unless squeezed in some way. My neighbor (if he can be called such) is a politician; and when he found out I had taken the pictures he said it would not make any difference—as much as to say he had the judge "fixed." The facts are that the judge is a friend of his.

In order to make his case good he went all over the neighborhood and found out all the children that had been stung by stepping on bees. He had their parents subpoenaed and brought into court as witnesses against me. His next-door neighbor, who had some hard feelings against me, swore that he could not sit on his front porch of evenings till bed time on account of the bees. Just think of it, brother beekeepers! what an industrious strain of bees I have, flying around at night and driving my neighbors in at a distance of 315 feet from my apiary!

Another stated that her children were afraid to pick the peaches on account of the bees. That same boy came to my house and looked through eleven colonies of bees while I was away. But when his mother wanted him to pick peaches he was afraid of being stung!

As the trial progressed, everybody thought that I was sure to be discharged. No one could swear that the bees the children stepped on were my bees—in fact, no one could say that the bees that were on the fruit were

my bees. I also proved that my next-door neighbor had bees as well as many others; in fact, I had only about one-fourth of the bees in that district.

I also exhibited fruit that had been in the hive for 58 hours, and not a grape was damaged. After all the evidence had been introduced the judge rendered the following decision:

"There has been a great deal of expert testimony introduced that proves that bees do not injure fruit. On the other hand, there has been more convincing testimony that people have been stung by the bees. However, I want you to get a decision in a higher court, and I will find the defendant guilty, and place the amount of his fine at \$100, which is the minimum amount." I was placed under arrest at once, and detained in the police station for a time. I gave a \$200 bond, and was released. Strangers to me, when they heard the decision, left the courtroom in disgust. One man was heard to say, as he shook his fist, "Politics! politics! d—d politics!"

Then I got busy preparing for the higher court. There was no law prohibiting the keeping of bees in the city limits. I took several photos of other apiaries, some of which are shown on the map. I live on a plot of ground 125 x 250, and control two other plots of the same size adjoining me on the north. I had 22 colonies. I found one apiary of 100 colonies on a fifty-foot lot in a congested residence district. The picture will show how close the houses were on each side. Does it not look a little strange that I should be fined \$100 for keeping 22 colonies on $2\frac{1}{4}$ acres while others could keep 100 on a 50-foot lot?

When the trial came up in the criminal court I was well prepared. Mr. J. F. Diermer, of Liberty, Mo., who is also secretary of the State Beekeepers' Association, was present and volunteered his assistance. Mr. Austin D. Wolfe, of Parkville, Mo., also was present as a witness with fruit to introduce as evidence. I had an observatory hive of one frame of bees with a lot of grapes inclosed, as well as a pear and a peach to show that the bees did not damage sound fruit. When my case was called, my lawyer did something that I did not altogether approve of, and without my knowledge. He produced the city ordinance that I was charged with violating, and showed that the city had not proceeded according to law against me, as I had not been notified as required by the ordinance; also that I had not violated the ordinances cited in the complaint.

After Judge Latshaw examined the law he promptly dismissed the case. Many of

my friends who keep bees in the city were present, and what a hand-shaking time we had!

Of all the beekeepers in my neighborhood I am the only one who is really making any thing out of bees. The people never see any one else carrying away honey as I do. They also see me on the street cars with bundles of queens in mailing-cages; therefore they seem to forget that there are any other bees than mine; so if a bee gives anybody any trouble it's always mine, and I hear about it.

I use up-to-date methods in caring for my bees, to which I attribute my success. I have supplied my beekeeping neighbors with queens, so it was impossible to identify my bees.

Many of my neighbors were willing to testify for me, and some came and offered their services. I shall always feel very grateful to them for their assistance. While

I should very much have preferred to settle the case on the strength of the testimony, it possibly was better to have it dismissed.

The man who had me arrested stated that he would have an ordinance passed prohibiting the keeping of bees in the city; but we have beat him to it, and the prosecuting attorney has stated that it would likely be unconstitutional.

I have also learned something. The next time any one threatens me with prosecution I will go and see the prosecuting attorney at once, talk the matter over with him in a reasonable way, and that will end the trouble. Any one who is likely to get into trouble should remember that attorneys are ignorant in regard to beekeeping, and are likely to issue a warrant through ignorance, and put one to a lot of trouble and expense in defending himself.

Kansas City, Mo.

HIGGINS VS. VAN WYE; A MAN WHOSE BEES GOT INTO COURT

BY W. A. H. GILSTRAP

The above action was called in the Superior Court of Stanislaus County, at Modesto, Cal., about 10:40 o'clock, Oct. 24, and was concluded after sunset the same day. The case was of special interest to the beekeepers of the county, and of passing interest to many others.

Mr. Higgins, in his complaint, said that Mr. Van Wye's bees were located near his home on the land of another person (Mr. Garver), and that they came to his pump and trough in great numbers, stinging his stock, his family, his hired help, and himself, causing suffering and loss of service; that he wanted the bees removed, and called for \$400 damages. Mr. Van Wye denied it all.

The case had been thrashed out at the meeting of the beekeepers at the Oct. 7th session of the county club, and Mr. Van Wye was strongly advised to move his bees and avoid a suit. He in turn insisted that we should help him in the suit, as it was ours as much as his; for if he could be made to move his bees when some one wanted him to, others would have to do so, and there would be no place left to keep bees.

During the trial it was clear that Judge Fulkerth wanted to get at the exact facts and the proper remedy for the trouble. At a remark from an attorney the judge said in substance, "Bees are lawful property. and beekeeping a good business. What the court must determine is what the conditions in this case are." He asked more vital questions than the lawyers, perhaps.

The plaintiff said he fought the bees with his hat till he was exhausted; that they stung him and made him so nervous he could not sleep; that in striking at a bee with an oiler he struck near his eye and made a bad wound on his face; that he thought he would be in the insane-asylum in three months if the bees stayed there. The bees were located there in June, 1912, and he had offered the defendant a location on his place further from his house, where they would not bother him so much, but defendant would not move them. When questioned he admitted his health was poor before the bees were there.

Mrs. H. said she was stung three times the day before the trial; that the bees scared her by getting in her hair and clothes, agreeing with Mr. H. that their little girl had been laid up by beestings, but denied that Mr. Higgins was made nervous by the stings, saying she was the "nervous one."

A man 25 or 30 years of age, perhaps, was the best witness for the plaintiff. He lived near, and was stung on the temple while working for Mr. H., and lay unconscious for some time in the alfalfa. He had been stung on previous occasions without serious results, and supposed the results of that sting were from the place it struck him. The bees were thicker at Mr. H.'s place than where the witness (I forgot his name) lived, but at the latter's place they were quite an inconvenience. He was so candid and fair in his statements that a person would have to believe what he said.

Willis Lynch, our county inspector, and J. G. Gilstrap, who had tried hard to keep the case out of court, gave long testimony about the location of the bees, their management, variety, what should be done with them, etc. The apiary was about 590 or 595 feet from the well, 100 feet from Mr. H.'s hog-corral. The only water provided for the bees when the case came to trial was a tub about a third full, in which was a grain sack on a float of some kind, probably a redwood board. The water was stale, and unfit for bees. There were no trees or other screen between the apiary and the well, except a partial screen of weeds part of the year, while the bees were located on ground too high to irrigate.

Several witnesses not mentioned were called to the stand, and several more present did not testify, as it was late, and the evidence was sufficiently clear.

When all the evidence was in, the judge said it was clear that the bees were an inconvenience, and they would have to be moved; that the plaintiff was unnecessarily

nervous, but had suffered no financial loss, and the court could grant no damages; that he did not wish to work any unnecessary hardship on the defendant, and wished to know how soon he could conveniently move the bees. Mr. Van Wye would not answer directly, as he did not know that he could get another place for them. The judge informed him that bees are entitled to protection, but human habitation is of first importance, and suggested 30 days as the limit. The defendant preferred a rainy day late in the winter if they had to be moved. Then the decree came that the bees must be moved far enough from the plaintiff so that they would not annoy him, by Nov. 15.

Judge Fulkerth said, in summing up the case, that such little cases should not come into court, but should be settled as neighborhood affairs. He warmly commended J. G. Gilstrap for trying to keep the case out of court. Mr. Van Wye has the costs to pay. He had a Modesto lawyer, also one from San Francisco.

Modesto, Cal.

BEEKEEPING FOR PROFESSIONAL FOLKS IN CITIES

BY W. M. COPENHAVER, M. D.

It is very important and very necessary that all who are closely confined by office work of various kinds find, sooner or later, some outdoor attraction, be it some of the various athletic sports or some such work as gardening, chicken-raising, etc.; and the more intensely interesting such livelihood may become, and at the same time proving a source of profit to the participant, the more likelihood will there be of its remaining a source of recreation. In the undertaking of almost any enterprise in life, it seems natural for one to consider the profit to be derived therefrom, and few of us care to undertake any work without the belief that there will be some return for the labor and energy expended. This seems to be human.

After considerable thought and study directed toward the choosing of a side line or "hobby," if you please, suitable for one of sedentary habits, one that would afford opportunity for considerable study, and at the same time bring one in touch with outdoor life, and because of its adaptability to life in a city, I have chosen that of beekeeping.

There are few cities, large or small, where a few colonies of bees may not be kept with more or less profit and a great deal of pleasure.

Dwelling briefly on the profit side of our

hobby, I might say that, for the amount of capital invested, the returns from beekeeping will often show a larger profit for the expenditure than from almost any other enterprise; and as proof of this statement I may say that I started with one colony in the spring of 1908, which was my first year with bees, and increased it to nine colonies, and received 50 lbs. of fancy comb honey as surplus.

In my present location, a town of 16,000 people, where bees had never been kept, two miles from nectar-secreting plants, from one colony, bought the spring of 1912, I made an increase to four colonies, and took 108 lbs. of fancy comb honey.

During the year 1913 these four colonies gave a return of \$15.00 per colony, spring count, with increase to 17 colonies, and \$20 in prizes at the Montana State Fair. This shows in a small way what can be done on a back lot in the heart of a city, and proves the statement that, besides pleasure, there is also profit in keeping bees.

But there is the more important side of beekeeping for the individual of sedentary habits than that of profit. I refer to the thoroughly absorbing subject of the study and manipulation of these very interesting inmates of the hive. One can not become interested in the study of the habits and life

of the honeybee without also becoming interested in plant life; for the life of the bee is so intimately associated with that of the flowering plants, especially those that produce honey and pollen, that the study of the former enlarges into that of the latter.

When weary with office cares and the ills and woes of others, how quickly one forgets himself and all else while manipulating the busy bees and studying the many wonders of the hive. So absorbing are their activities that one gains thorough relaxation, and returns to his work refreshed through this relaxation, and exhilarated by the enthusiasm which bee culture inspires. I have found the subject of beekeeping very fascin-

ating, and an ever increasing interest seems to accompany its study. It seems to be specially suitable for professional folks, because the work connected with it can be performed at odd times, and does not need constant attention. If one must be away for some time the bees move quietly about their duties, regardless of our absence.

The subject of beekeeping is not all written as yet. New problems and new conditions are continually arising, and many surprises are in store for the apiarist. All in all, the student will find it a fascinating study, and much recreation and relaxation in it from office toil.

Helena, Mont.

BEEKEEPING IN THE LARGEST CITY IN THE WORLD

BY D. M. MACDONALD

Perhaps London is about the last place in the world in which successful beekeeping might be looked for; yet it is an undoubted fact that, within a few miles of the very center of the city, it has been made to pay. I have seen small apiaries on the flat roofs of buildings, one in a beehouse, and several in observatory hives fixed in windows, and I have been informed of scores of apiaries all over the metropolis.

In some respects London is the Mecca of beekeeping in the British Isles. A very large proportion of the honey grown finds its way to its markets. Our leading appliance manufacturers and dealers are located there. Our monthly and weekly bee journals are published there. Three of the leading shows are held within its boundaries—the dairy, the grocers', and the confectioners'. To these all the best samples of honey which have stood first at local and county shows gravitate as a natural center for final adjudication. Our new Government Apiary and Lecture Rooms, carried on under the Development Grant, are located at the Zoological Gardens, Regent's Park. The British Beekeepers' Association has its library, reading room, and offices in the Strand, where all the business is transacted, and there country visitors interested in apiculture call, when in the capital, to talk bees.

No large apiaries exist within the metropolitan area, but countless small ones are carried on for either pleasure or profit. A single hive may, under exceptionally favorable circumstances, yield from 100 lbs. upward, and I am able to cite one case where 180 finished sections were obtained, and sold for 24 cts. each, thus yielding a return of \$43.75. It is more interesting still to learn that right in London, only 3½ miles from

Oxford Street, a fair-sized apiary can be carried on over a series of years, and that it can be made to pay. One beekeeper with two hives had a total return of all but 1000 lbs. in eleven years, and he would have exceeded it but that in the last two years he had foul brood. He had an average of 51 lbs., leaving out this period. On three occasions he had 100 lbs. surplus.

Mr. Baden-Powell keeps bees at Hyde Park Corner, in the very heart of London, and they not only keep themselves, but secure some surplus. Some of the hives over the metropolitan area are of the observatory type, and are kept in the drawing-room window where they are a center of interest to the lady owner as well as to numerous visitors, who very much enjoy seeing the bees and their wonderful works.

Bee lectures are frequently given in various parks in the metropolis, and of late the cinematograph has been considerably utilized to spread a knowledge of bees (and, incidentally, of honey) in places where the bee and its product were perhaps never before heard of. Recently 2000 children from twenty metropolitan elementary schools came with their teachers, in batches of about fifty, and had half-hour lessons on the bee. The observatory hives shown proved intensely interesting. Seeing the queen was a delight; observing the bees' tongues sipping up syrup was much enjoyed, and hearing of that marvelous weapon the sting proved very fascinating to the youngsters. The *Telegraph* and the *Daily Mail*, two of London's leading dailies, devoted a large amount of space to bees and beekeeping a year or two ago. They even kept hives on the roofs of their offices, in the very center of the city, and issued daily bulletins in the season

of the bees and of their doings. In this way they did much to popularize honey, and drew the thoughts of many to the marvels of the hive interior. Very many suburbanites started apiculture, and a beekeeper who went out and in among these, reports records of 60 lbs. of sections; 108 well-finished sections, and a host of 40 to 50 lbs. surplus. Swarming was not troublesome, as special precautions were taken to avoid it.

These crops were obtained near Tooting Common, some miles from Epping Forest, Nimbledon, East Ham, Hyde Park, South

Kensington, Battersea, etc., and most of it was gathered from lime, plane, and fruit trees and bushes; but a good share was from mixed sources. Racks of sections were taken off perfectly completed, in some cases, in May. Queens have been mated in the city, and turned out quite prolific mothers in the early days of June. Proposals have been made from time to time to start apiaries in the public parks; but the initial cost, and the difficulty in finding qualified care-takers prevented the idea from bearing fruit.

Banff, Scotland.

SOME DRAWBACKS CONNECTED WITH BEEKEEPING IN A CITY

BY HENRY REDDERT

There is no difficulty in keeping bees in or around a large city, provided the beekeeper is democratic and diplomatic. By democratic I mean that he should assure the same rights to his neighbors that he himself would demand if he were in their place. It goes without saying that bees at times will cause trouble to the surrounding population. Here is where diplomacy comes in. The beekeeper should be ready with adequate explanations for any trouble, however great or small, that causes discontent among his neighbors. I have had sufficient experience along these lines to know whereof I speak. I have often read something running like this: "I never have any complaints about my bees from the neighbors;" or, "My bees never sting any one in our neighborhood," and similar remarks. Notwithstanding these assertions, the fact remains that bees do sting the neighbors sometimes, especially during the honey harvest. Some people being stung are too modest to complain; others set up a yell like a stuck pig. But just let them be sweetened with a pint or so of honey, and all is well. In due time the neighbor will begin to ask questions about bees, honey, etc.; and if the beekeeper is a good conver-

sationalist he'll soon have them on his side, and glad to know all about bees and the good they do to humanity.

I once had a neighbor who complained that my bees were puncturing all his pears. The fact is, he never had such fine pears before my bees pollinized the blossoms of his trees. This he admitted. After I explained the causes that led to the punctures (birds or hornets), and the good bees do in pollinating the blossoms, he said, "Let the bees come over as much as they please."

I do not approve of keeping bees in an attic, tower, or housetop. The least scent coming from the windows of adjoining buildings during fruit and berry preserving time brings them by scores around the windows, trying to get in, consequently annoying the inmates, which finally leads to condemnation. These and similar circumstances should be considered when one embarks in the bee business. With this in mind, and a fair knowledge of the nature of bees from text-books and bee-journals, with nerve thrown in, I don't see why any man or woman who loves nature should not keep bees.

Cincinnati, Ohio.

THE CITY BEEKEEPER CREATES A LARGER DEMAND FOR HONEY THAN HE CAN SUPPLY

BY L. D. MARTINE

Some of the professional beekeepers may feel that this special number will do them an injustice by encouraging beekeeping in cities, as that is where they expect the demand for their product. Others, no doubt, will feel that it does not affect them, as they sell to the jobber. Both, however, are mistaken; for what affects one in this case will also affect the other, as it is the demand

made by the consumer that regulates the price received. The question is, "Will the city beekeeper increase the demand, or merely help supply what already exists?"

At present, the consumers depend on the grocers mainly to supply them with honey, so these grocers are the agents, either direct or indirect, of the honey-producers. He places the honey on the shelves with other

supplies, and awaits the demand for it. He knows it is honey, and that is the limit of his knowledge regarding it. The patrons who buy it know very little more, and recognize it merely as a sweet. These are the conditions that have existed for many years; but a rapid change is now going on, and this is due to the progressive city beekeeper.

The best advertisement he has is his bees, and he can make a great deal more by working them to create a demand for bees and honey than he can by producing honey. There is better material for him to work on than there is for his bees. Almost any one living in the city becomes deeply interested when told some of the wonderful habits of the bee, and will appreciate an invitation to the city beekeeper's yard where the latter explains every thing about the bees, and also about the honey—the way it is gathered, the process it is put through which makes it easily digested, etc. The beekeeper in this way creates a desire for honey that never before existed; and since the bees are shown

to be not "savage little creatures," he is apt to make a beekeeper, a honey-eater, or at least a good advertiser out of each visitor. He will then find a demand for his honey.

A good grade of honey in the homes of the people he has educated to its food value is highly appreciated, and the honey-eating habit is encouraged. It is wonderful to note how much such homes will consume, as it proves both economical and healthful; and the city beekeeper will be making sales to many he has been recommended to; and before he realizes it he will find himself in a profitable independent business as a side issue.

No doubt many beekeepers in cities have never realized these opportunities that are open to them. Others will think it too good to be true; but it is being worked out successfully by the writer, who feels that the city offers greater opportunities for bee-keeping as a side issue than the country does as a profession.

Cleveland, Ohio.

FROM ONE COLONY IN A CITY TO A SERIES OF THREE APIARIES

BY J. P. MARTINE

In 1904 my health was such that my physician advised me to give up my court work—official court reporter—for a time, and take a complete rest, which I did. After a rest of four months he told me I could take up my court work if I would get interested in something that would give me outdoor exercise and take my mind completely off my court work each day after leaving my office. Following a friend's advice I purchased a colony of bees; but having no yard space I placed the hive upon a shed. The part of the city in which I live is thickly populated. My bees swarmed within two weeks after I got them; but I hived them, and they gave me between thirty and forty pounds of honey that season. I spent considerable of my spare time watching and studying the bees, and my health improved from the time I got them.

My bees continued to increase each year until I had eight colonies on the shed, and they never failed to give me considerable honey each season. In 1910 I had had such success in getting and disposing of my honey that I concluded to increase my bees enough so that I could devote my entire time to the bee and honey business. I therefore increased and purchased bees until I had 35 colonies in an outyard I had started 12 miles above the city. In 1911 I made arrangements to handle bee-supplies, and in 1913 my business had grown to such an

extent that I resigned my position as official court reporter, rented a store in the central business portion of the city, and am now devoting my entire time and attention to the supply business and bees and honey.

I now have three beeyards, and handle the three-banded Italians exclusively. Every Saturday during the summer I have from fifteen to twenty-five persons at my middle yard—just inside the city limits—and demonstrate to them the manner in which the bees are handled and how the honey is produced, taken from the hives and extracted, and I never fail to have an appreciative audience. I have also taken out whole classes of schoolchildren. I still keep bees on my shed, and while they have to go quite a distance to get to the clovers, when it comes to gathering honey they hold their own with bees in either of my outyards.

Louisville claims a population of 275,000; and I am personally acquainted with quite a number of persons who keep bees—some of them in the very center of the city—and their bees will average as much honey as the colonies in the country. They are kept in attics, stable-lofts, on sheds, and in yards, by professional men, merchants, and mechanics, and seem to do about as well in one place as another. I have completely recovered my health, and my physician says it is principally due to my working with the bees.

Louisville, Ky.

Heads of Grain from Different Fields

650 Pounds from Four Colonies in Detroit

The past season has been a good one. I increased from 4 to 10 colonies, and have 650 lbs. surplus. The honey is mostly from sweet clover.

Detroit, Mich., Oct. 27. FRED KOEPFGEN.

A Large Yield in a City of 100,000

I have 13 colonies in the rear of my city lot; and while I had a very good crop of honey last year I could have sold twice as much if I had had it. The buyers come to the house to buy, without my making any effort to sell. They seem to think that honey produced in a city is a great novelty.

Youngstown, Ohio, Nov. 28. J. R. McCURDY.

Bees to Educate Three Boys

I had seven colonies in the spring, and took off over 500 lbs. of comb honey, and increased to ten colonies. I bought ten more hives for next year. I am absent from home two and three weeks at a time; but by shaking my colonies I did not lose a swarm this year. I hope to make the bees educate my three boys. I am glad I have been led into such a pleasant and profitable avocation.

Brownstown, Ind., Nov. 18. D. F. RANKIN.

Four Colonies on a City Lot 75 by 120 Feet

I will try to tell about my success last season. Last spring found me with twelve strong colonies in fine condition on a city lot 75 x 150, four squares from the courthouse on one of the main streets. From these twelve I took 1307 sections of honey made from white clover, sweet clover, and buckwheat. This was all sold to the local trade, without advertising, at 20 cts. per lb., which netted me \$210.25. Beside this I sold \$34.50 worth of bees. I consider this doing very well, taking into consideration the small amount of time I had to give to them, which was in the morning before going to work, and after six o'clock at night.

Columbia City, Ind. FRANK LANGHOR.

Increasing 3 Colonies to 17 in Two Years, and Securing 2100 lbs. of Honey, all on a City Lot

We live in the city on a lot 40 x 120. We have a chicken-coop on the back of the lot, with a good-sized yard to it, and in this yard we keep our bees. A year ago last fall we put five colonies in the cellar and lost two of them. The other three were in pretty good shape, and that summer we took off 500 lbs. of comb honey and got 8 new swarms. I put the eleven colonies in the cellar in the fall, and last spring we carried out the eleven, all in good condition, and this fall we quit with 17 swarms, and I took off 1600 lbs. of honey—800 lbs. comb and 800 of extracted honey. We had one little after-swarm come to us the latter part of June. I built it up and took 106 lbs. of comb honey from it, and the bees had plenty left to winter on.

Madison, Wis. F. D. JOHNSON.

What can be Accomplished in Four Years

Perhaps it would be interesting to know that, four years ago next spring, I placed an advertisement in GLEANINGS, seeking a position on a honey-ranch. I landed here at Elko with just \$50 in my pocket. I went into partnership with Henry Willis of this place, and bought 50 stands of bees, he furnishing the capital. Last fall I bought out his half interest, and I now have, all my own, about 250 stands of bees

which produced nearly 20,000 lbs. of alfalfa honey the past season; about 200 extra hives, frames with full sheets of foundation, 1000 supers, both extracting and comb—the former with either full sheets of foundation or combs drawn out; one bee-cellar, one honey-house, large power extracting-outfit, one I. H. C. auto truck, and one 50-horse-power Springfield roadster for joy-riding. Last, but not least, I have a honey market which will take at least 40,000 lbs. of honey a year. Can any one beat that?

Elko, Mont., Jan. 24.

A. H. BELL.

807 Sections from Six Colonies, in Auburn, N. Y.

The inclosed report is from my notebook, telling the date and number of sections taken from each hive. The sections were all fancy, No. 1, and a few No. 2. I also have over 100 unfinished sections that I expect to use for baits. Hive No. 6 is a stray swarm that clustered on our hospital porch June 14, to which I gave all brood from the other hives, using Doolittle's plan described in "A Year's Work in an Out-apriary."

Hives	1	2	3	4	5	6
July 4, sections.....	32	42	20	70		
July 12, sections.....	36	26	35	26	50	43
July 20, sections.....	21	48	22	36	15	
August 23, sections....	40	42	37	30	42	44
September 20, sections.	20	10			12	8
	97	168	146	112	189	95

Total, 807 sections from 6 colonies.

Auburn, N. Y.

MRS. JOSEPH RAESLER.

Castor Beans for Shade for Bees on a City Lot

I am only a backlot beekeeper, located here in a city of 30,000 inhabitants. Here one has many things to contend with than the man out in the country is free from. In the first place, we must not place the bees too near the house or the walks in the yard, or the "boss" of the house is liable to put in a vigorous protest. The neighbors have to be taken into consideration also; and to keep peace with all, and have the bees well located as to sun and shade is no easy problem with the limited space at hand.

I keep my bees in a small house, 6 x 10 ft. This provides the required shade; but in the house the light is poor and one can't see to work with the bees to advantage. Last summer I planted some castor beans sent me by a friend from the Botanical Gardens, Washington, D. C. I planted the seeds about five feet south of the fence on the north side of the lot; and when the plants started to grow, "Jack and the Beanstalk" were distanced a mile. The growth was very rapid and strong; and when the trees came to maturity they were from 6 to 8 feet tall, and some of the leaves were 2 ft. across.

I had a bracket on the fence to place a hive of bees on. The trees shaded this stand very nicely, and made an ideal place for one colony. The shade suggested to me that this would be a good opportunity to use the plants for other than ornamental purposes, and also an easy manner to get the desired shade when the hive-stands are in exposed positions. The plants can be trimmed from time to time; and as the season advances, if more sun is needed, say in September, cut the trees down.

I call the plants "trees" for the reason the ones I had were trimmed just as one would trim a shade-tree. I have promised to furnish seed to a friend out in the country about ten miles. He has 100 colonies of bees, and very little shade for them in the beeyard.

La Crosse, Wis., Jan. 17.

THOS. D. BUDD.

Sources of Honey around Portland, Oregon

I am not as yet a beekeeper, even on a small scale; but I hope to get a few colonies next spring. My work is very confining, and I shall not have a great deal of time to devote to bees, nor can I have room to keep very many of them; but with, say, five colonies (as I plan to start with five) I should be able to get some increase as well as a fair surplus of honey.

The part of the city in which I live should furnish good bee pasture, as there are lots of wild flowers in addition to dandelions, dogwood, and white clover. On the hills above us are myriads of dogwood, wild blackberries, thimbleberries, wild strawberries, wild peas, and numerous other flowers that I know no names for. In addition there are hundreds of acres of hazel brush that I suppose would furnish pollen enough for all the bees in the State.

On the open places on the hillsides, and down on the lower lands, including lawns, white clover and dandelion grow in profusion; so it looks to me as though I am admirably situated for keeping a few bees. We also have a kind of thistle here which bears a (matured) burr similar to the cocklebur (the blossoms are of a kind of shaving-brush shape, of the ordinary thistle), which must be a good honey-plant; for during the summer I noted one plant on which bees were working; and while I can not say how many of them, I would venture a guess at about fifty.

Portland, Ore., Oct. 17. D. C. MILLICAN.

Bees in an Attic

I have a large attic in my house some 10 feet high in the center, and 86 feet wide, with sloping roof. It is perfectly dry. The house faces the north and south. I have been told that this would be a good place to keep bees. It is in a good residential section where there are plenty of white-clover blossoms all summer. Any assistance you may be able to give me will be greatly appreciated.

Cleveland, Ohio, Nov. 8. W. D. FRASER.

[There is no reason why you can not start bee-keeping in your attic as you suggest. About the only objection to the plan is that it is a little inconvenient to take supplies up and down, and it is also a little difficult to manipulate the bees without having a good many of them fly out around the room; and as they can not find their way back they become lost.

The first objection named need not be a serious one if the work is planned as it should be; and the second objection can be overcome if the hive or hives can stand by a window, which, during the summer at least, is removed entirely. In the fall you can replace the window, allowing the bees only a small entrance, and the colony will winter very nicely, since the hive is well protected.

If your attic has a south window this would be the window in which to locate the colony of bees, for it pays to select a sheltered window if possible.

A great advantage in having the bees located in the attic is that they are up so high that very few persons will ever know you have any bees, and no one is likely to be troubled by them. There is hardly a city in the country that does not have a number of colonies of bees located in attics.—ED.]

If a Beekeeper Wishes a Larger Income Let Him Get More Bees

I have just read Mr. O. L. Hershiser's article, p. 29, Jan. 1. To a beekeeper who wishes to make the most out of his bees I would say that I would not advise him to take on another line in connection

with the bees. About two years ago I went into the machinery business as a side line, and thought perhaps that with a helper I could attend to the bees and at the same time make good with the machinery. Before I took on the machinery end of the deal I was averaging from \$4.50 to \$6.00 a colony per season owing to the honey-flow and weather conditions I run mostly for extracted honey, but have found that since I have been doing both the bees have not averaged me over \$4.00 per colony, because they have not had as good care. I find there is always something to do around the beehouse or apiary at all times for the betterment of the bees as well as to the profit of the keeper.

Any one who wishes a larger income than at present, and who has a few hundred dollars more to invest, will do well to put on a few more colonies of bees. He will be better satisfied in the end, and will have more dollars in his pocket.

I have seen king-birds eating bees by the hundreds when there were no drones in the yard to speak of. I also have shot these birds at different times, and found worker bees in their crops in great numbers. If these birds are allowed to hang around the apiary in great flocks, as I have seen them, they will weaken on the working force of every colony.

Haskinville, N. Y.

M. C. SILSBEE.

A Good Record from Kansas

About May 1, 1913, I bought four colonies of Italian bees, paying \$20.00 for the four, and \$3.00 extra for fixtures. I brought them home and set them on places I had provided for them to stay all summer. The hives were in fairly good condition as to strength when I got them. About June 1, or with the commencing of white-clover bloom, I worked them according to the Alexander plan of increase, leaving the queen with one frame of brood and nine frames of foundation in the body below with queen-excluder over them. I set the old body with brood on top, then let them alone for nine days. On the ninth day I looked through them. The brood was all capped over, and three of the four had plenty of nice queen-cells capped over.

One hive had not started any queen-cells, so I let them stay as they were. One of the hives I did not think quite strong enough to divide. I cut out all queen-cells and let them alone without making any division. From the two other hives I set the top body off on new hive-stands. So you can see my increase in that way was from four hives to six. However, I formed a nucleus later on and built it up to a fairly strong colony by cold weather.

I worked the bees for extracted honey; but the drought cut down the white-clover and sweet-clover crop about half, if not a little more than that. The season was so dry we did not have any fall honey—only a little which they got from the river bottoms, which are about two and a half miles from my place. However, my bees made living after the clover gave out, but nothing more, up until frost. I know they got it from the river bottoms, as there were no live flowers nearer to my place for about a month or longer before frost. They gathered some surplus during a part of June. I sold \$28.00 worth of extracted honey, and kept three gallons for home use. I sold it at 50 cents per quart, the parties furnishing the vessel into which they put it. My honey weighed full 12 pounds to the gallon. This surplus was nothing to brag about; but the price was good—16 2-3 cents a pound.

This is where the city beekeeper has the advantage of the beekeeper who pays freight, commission, and gets a low price for his honey. I had customers who came back for more, but I had to refuse them or do without myself.

Kansas City, Kan.

W. A. DILLON.

Our Homes

A. I. Root

Lay up for yourselves treasures in heaven, where neither moth nor rust doth corrupt, and where thieves do not break through nor steal.—MATT. 6:20.

Seek ye first the kingdom of God, and his righteousness, and all these things shall be added unto you.—MATT. 6:33.

Let us not forsake the assembling of ourselves together.—HEB. 10:25.

They that feared the Lord spake often one to another.—MAL. 3:16.

I have told you how eagerly I questioned every beekeeper and every one I could get hold of who knew any thing about bees when I was first attracted by that runaway swarm. After I had gotten hold of the book "Langstroth on the Honeybee" I became still more entranced with my new hobby. I hired a horse and buggy and hunted up the beekeepers in our immediate locality, but they all had box hives. Some of them had heard of such a thing as a queen, but they did not know for sure. At length I heard of an old farmer east of town who actually had his bees in Langstroth movable-comb hives. You can hardly imagine with what haste and anticipation I went over to his place. There they were, sure enough, in his dooryard—a dozen or more hives, just such as I had been reading about in that wonderful book. I can not quite recall, but I think he opened a hive and showed me a queen. Then we two all at once became fast friends.

I soon had some hives made, using one of his for a pattern, besides following the directions in the book. After I had my colony transferred to this Langstroth hive I ordered that \$20.00 queen I have told you about. He asked me several times if I had got them in good shape to winter; "for," he added, "it would be a sad thing to lose a queen that cost so much money, besides being the first Italian bee brought to this region." Finally he went down to my home and declared my poor weak colony of Italians would not hold out a month. You see I had experimented with them, making them raise queen-cells, etc., until there were really not very many bees left. By his instructions I purchased a good strong colony and got my queen safely introduced.

At the time of which I am speaking I was manufacturing jewelry, and doing quite a good business. This friend of mine, Mr. George Thompson, was a devoted Christian, and one of the leading men in our nearby Congregational church. As I made progress with the Italians he used to drop in quite frequently to find out how I was getting along with the bees. After we had become quite well acquainted he came into the store one day and said:

"Mr. Root, you are beginning to have considerable property here."

He glanced around at our establishment, and then continued:

"I suppose you have it well insured?"

I replied in the affirmative.

"You have your home insured also?"

I assented as before.

"And your life is insured also?"

When I replied as before, he added something like this:

"Mr. Root, I am glad to know it. It has been remarked to me that, although you are making wonderful progress in your work, you are a careful and prudent business man. That is right and good. Now may I take the liberty to question a little further?"

I laughingly replied, "Go ahead, friend Thompson. I am glad to see you interested in my welfare, and I shall take great pleasure in answering any question you choose to ask."

I think that, up to this point in the conversation, I had no intimation of what he had in mind. So far as I can recall he said something like this:

"Mr. Root, you are managing admirably for the things of this world, but what 'insurance' have you for the world to come? What provision have you made for 'the home over there'?"

He pointed up as he said this.

I thanked him, and he hurried away; but although a very busy man at the time with bees and the little factory, watch-repairing, selling goods, etc., his remark kept ringing in my ears. The thought kept coming up like this; and let me put it in language as my good friends down south might say it—"Right smart" of the things of this world, but how about that "home over there"—the unseen world to which we are all hastening? What have you done about treasure in heaven? What progress is being made in that direction?

I was forced to admit that a frank and honest answer would have been, "Nothin' doin'." It would really have been true at that time, dear friends, that I paid little or no attention to what was going on in the world outside of bees and business. I was keeping track of the boy Edison, reading the *Scientific American*, and the farm papers that touched on bees; but I did not go to church nor to Sunday-school; and yet at the very time a prayer-meeting was being held in one of the upper rooms of my store. I used to drop in and take a back seat for a

little while, sometimes; but as I was not particularly interested I did not seem to catch on. I presume it was a little later—perhaps two or three years—that our two children, a boy and a girl who went to Sunday-school as regularly as the rising of 'ne sun (thanks to the good mother), began to inquire why *papa* never went to church nor Sunday-school. I have already told you something about how it happened that I "woke up." I remember vividly one particular Sunday of going to Sunday-school. The superintendent put me in the men's Bible-class. My friend Thompson was the teacher. I remember wondering how it was that I had never before become intimately acquainted with the members of that class. They were good and bright men, and my heart warmed toward them all. In fact, it was at a time when I was just beginning to love humanity and God the great Creator. I do not think I ventured to take any part in the exercises that day. It was all too new to me. At the close of the lesson the teacher took out a little book and "called the roll." It seemed at that time (close to forty years ago) that it was the custom in the report to give the number of regular attendants and also the number of visitors. My good friend had his pencil raised from the book a little, and said, "Mr. Root, shall I enroll you as a regular attendant of our class, where you know you will be most welcome? or shall I put you down as a visitor to-day?"

How well I remember the kindly look he gave me. I hesitated a little. It was a crisis in my life. God only knows how grave a crisis it was. Years of anxiety and years of turmoil, contrasted with years of joy and happiness hung on my decision. You know, dear friends, I am impulsive, and have been all my life. I finally replied, a good deal under the sudden impulse, and said:

"Friend Thompson, you may put me down as a *regular attendant*; and, God helping me, I am going hereafter to Sunday-school every week in my life."

I do not know what he wrote down in that little book. It is probably lost by this time; but I do remember I felt troubled about it right away afterward. Not only my good friend but toward a dozen others heard my declaration; and above all, and incomparably more than all, God heard it. I called on him to witness my pledge or vow, if you choose to call it so, that I was going to Sunday-school from that time on, every week of my life. I not only had stepped through, but I had put up the bars behind me. There was no retreat. I could not well ask him and the good friends I met on that momentous Sunday to let me *recall* those

hasty words. There was nothing to do but to push forward; and as I pushed forward my footsteps grew lighter and happier every day of my life. I soon learned there was a weekly prayer-meeting, and my pledge seemed to include that prayer-meeting also. To be consistent it also included the preaching service, morning and evening; and pretty soon it began to be remarked that, if no one else were present, A. I. Root was sure to be unless he was too sick and hence could not go. My punctuality has been commented on wherever I have been; and as of late I am really obliged to get up nearer to the teacher or preacher, my invariable presence is more conspicuous. Please do not think, dear friends, that it was only a hobby of mine. A good pastor away out in California once said that, during all his life, he had noticed that those who are crowded up close to the sacred desk are the ones who got the most good; and accessions to the church always come from that part of the audience nearest the speaker. Our pastor has of late been urging at times—yes, vehemently urging—the members of the church to come up in front, and to leave the back seats vacant for strangers or those who do not go to church very often. I can not understand why so many good people crowd into the back seats, away off from the front, when it is such a pleasure for me to get up close to the speaker. There have been spells during all of these forty years when I was too sick to go to church; and sometimes I have ventured to go when the rest of the family remonstrated, and I always feel better after going to church, Sunday-school, or prayer-meeting, and it is a good thing for the *health* to meet with God's people. I feel sure it has been the means of prolonging *my* life—my regular habit of being on hand at religious worship. Out in California, away up in Michigan, and one time down in Florida, my friends informed me that there was no Sunday-school; but in all three places I managed to have at least a sort of Sunday-school when the time came around; and in at least two of the places a church has been built up where I started a Sunday-school. Assembling with God's people on his holy day is laying up treasures in heaven. Giving your money and your time to the cause of temperance, repressing gambling, the white-slave traffic, and all such evils, is laying up treasures in heaven. If men do not tell you so, the Holy Spirit will. What do the baubles of this earth amount to compared with "treasures" laid up "where moth doth not corrupt and where thieves do not break through nor steal"?

High-pressure Gardening

HAVING THE GROUND ALL OCCUPIED.

After our "high-pressure" soil has been carefully tile-drained, worked up fine, with all trash plowed or spaded under, manure and fertilizer worked in, it is of the utmost importance that we have a plant of some kind, wherever there is room for a plant. Down here in Florida sometimes *one hundred* dollars' worth of fertilizer is applied to a single acre. Now just think what folly it would be to have "missing hills" or spaces where nothing is growing in the rows! worse still where only weeds are allowed to grow. I have recently spoken about saving your own seed so as to have every kernel of corn that is planted come up; but this can not always be done. I have also spoken of planting field corn, not only the second time but even the third; but this last planting usually gives only fodder, which is better than nothing. I have also told you about what a crop of white beans we secured, with no cost except the price of the seed and the labor of planting them when the corn failed, or when the crows pulled it up. One season we raised several bushels in this way, and they were sold to our factory help for a good price as soon as they ran out from the thrashing-machine.

Well, in truck-gardening there have been many attempts to grow something of value wherever there happened to be missing hills, or perhaps a space to get in a *row* of something. Cabbage-plants are often put in; but, as is the case with white beans, when the main crop is off, the cabbage or beans, or something else, may not be ready to harvest. Let us consider a moment the importance of having another crop occupying the high-priced ground the *very day* the first crop is removed. I remember, years ago, telling Mrs. Root one morning to take a good look at a fine patch of Early Wakefield cabbage. Said I, "Sue, before sundown every cabbage will be off, and the ground covered with growing strawberries." We did it; and by the aid of a transplanter I had invented, scarcely a strawberry plant wilted. The above illustrates finely the advantage of filling vacant spaces with something that can be all cleaned off the "minute" the main crop is harvested. Here comes in, "gentle reader," my latest "new discovery." Dasheen will fill the bill, for it is *always* ready to harvest, the easiest thing to transplant, and, if you want further proof of the value of growing shoots for food, read the following from a bulletin just issued from the Department of Agriculture by our good friend Prof. Young. I

have already spoken of the difficulty of keeping the large central corms after being dug, and this solves the problem. The bulletin is entitled "The Forcing and Blanching of Dasheen Shoots," and contains five beautiful cuts. I quote as follows, omitting the cuts:

As the growing of the dasheen as a tuber crop begins to assume commercial proportions, it seems desirable to make available to growers and others who may be interested the details of a special treatment of the corms (large spherical tubers) by which a delicate fresh vegetable for winter use may be obtained. Credit is due to Mr. P. H. Dorsett, of the Bureau of Plant Industry, for the original suggestion of raising the shoots in this way. Other workers associated with the bureau have also contributed helpful suggestions during the process of the experiments. Acknowledgment is also due to Dr. J. H. Kellogg, Battle Creek, Mich., for carrying out the extensive greenhouse-bench experiments illustrated in this paper.

The young blanched shoots of the dasheen make a very tender and delicious vegetable and are used much like asparagus. The flavor is delicate and is suggestive of mushrooms.

CULTURE.

To obtain the shoots, corms, weighing 2 to 3 pounds or more, are planted in a fairly warm place in very moist sand or sandy soil. A half-and-half mixture of sand and ordinary potting soil has given good results. Wet sphagnum moss has also been used, but the sandy soil is probably better. The corms are just covered, the terminal bud being at the surface. Provision must be made for keeping the shoots in total darkness from the time they begin to grow. Water should be supplied often enough to keep the sand or soil continuously moist.

Several ways of forcing and blanching dasheen shoots have been tried, and all have been successful in that satisfactory shoots were grown. In any instance, however, in which the raising of shoots is to be undertaken, the method best adapted should be selected. In the first experiments made by the Department of Agriculture, both sand and sphagnum moss were used in which to plant the corms. In one of these, blanching was accomplished by keeping the shoots covered with sand, while in the others a frame covered with several thicknesses of burlap was used. The boxes in which these experiments were carried on were placed in a warm greenhouse on a bench that was supplied with bottom heat.

Neither of the foregoing methods is adapted for use where the production of shoots on a large scale is desired. For such a case, provided the weather is not too cold and a suitable greenhouse is available, a bed may be prepared under a bench. The space may be darkened by hanging several thicknesses of heavy paper or burlap from the sides of the bench. This plan is suited to the spring of the year, while those methods by which bottom heat can be applied may be used at any time after the corms become available, in the late fall or early winter.

The method which is probably best for large-scale production is to use a raised bed provided with bottom heat. A cover practically light-proof and with sides 18 to 24 inches high, is required. The temperature inside this should be about 70 degrees Fahr. The soil (or sand) should be a little warmer, say 80 degrees. To obtain this temperature it is best to enclose partially the space beneath the bed.

The first crop of shoots is usually ready for cutting in 35 to 40 days after planting. From 6 to 10 cuttings can be made at intervals of 10 to 14 days, depending upon temperature and the size of the

corms used. The shoots are cut close to the corm, and, as far as practicable, before the leaves begin to expand. They will then usually be 8 to 16 inches long.

After the corms become exhausted, which is indicated by the weak growth of the shoots, they are discarded.

Out of doors in a warm region, as in Florida, the corms may be planted in rows in sandy soil, and the shoots blanched by ridging up the soil as growth progresses. Instead of ridging the soil, boards may be used, as in blanching celery, but the shoots must not at any stage of their growth be exposed to light for any considerable length of time.

Our readers of last year will recall that these bleached shoots were frequently mentioned. Well, in digging our dasheens in November it was rather difficult to get out every small tuber, and, as a consequence, they are all the time coming up here and there. As the garden was spaded pretty deep, many of these "volunteers" have long bleached shoots before they get up to daylight, so we have the "asparagus dashen" for just digging them out.

About two weeks ago neighbor Rood said some stable manure would help my stuff on, the new ground, and I bought a load (\$3.00). Well, after it was well worked in with a hand cultivator we had a very heavy rain, and this manure, in addition to the commercial fertilizer, just "hit" the buried dasheen tubers, and their ivory-white shoots are now sticking out all over the garden.

NORTHERN-GROWN SEED POTATOES FOR THE FLORIDA TRADE.

In order to give you just a little glimpse of the traffic in growing seed potatoes for the Florida truckers I clip the concluding paragraph from a letter from a very good friend of mine.

Florida is planting an immense acreage to potatoes this season. Our potato sales into Florida for planting alone must exceed 50,000 bags of 150 lbs. each, since Nov. 1, 1913. I am keeping my eye on the dasheen, and expect to be selling them (southern grown, of course) within two years at least. Our seed-potato trade includes Texas, Florida, Louisiana, North and South Carolina, Georgia, Alabama, Virginia, New Jersey, and Delaware.

Malden, Mass., Feb. 6. EDWIN E. HARRINGTON.

One of the first things we did when we got here in November was to plant some potatoes in the garden, and we have been planting more and more as fast as the ground was ready; and if you could call on us now (February 10) I would show you the finest-looking potatoes I ever saw, and the new ones we are now digging are as fine as they look.

FROM PRODUCER TO CONSUMER.

The following hits so many nails squarely on their respective heads, we clip it entire from *Farm and Fireside* of Nov. 22:

SELLING H.G.I. CLASS HONEY.

By K. E. Hawkins

"George, I'll give you fifteen cents for all the honey you'll bring me this year," remarked the groceryman to a steady farmer customer.

"Not on your life," was the ready reply. "Why should I sell it to you for fifteen cents when I can get twenty for all I have, and more too?"

There is the rub with the farmer beekeeper. The storekeeper, the commission man, and a dozen others fleece him out of half he might make in the honey line, and it's usually his own fault. This man sells his honey to private customers, getting the best retail price for it, instead of turning it over to the storekeeper at five cents less a pound. True it means a little more work, but work brings its reward.

PURE HONEY HAS A DEMAND.

When your honey crop is ready ask your wife to put a case or two in the buggy when she goes to those private customers with the butter and eggs. They are always glad to get honey the purity of which is assured. Then, too, they always pay top-notch prices, as they do for the good butter. I know one farmer's wife in Illinois who makes one trip to Joliet every week of her life with butter and eggs. Her husband has nine swarms of bees, and this very year the product of the bees has been over one thousand sections of marketable honey. Nearly every private customer, and they have many, in Joliet, has ordered a case of honey from the sample she showed along with the butter and eggs. Nearly every customer had a neighbor or two who bought some of the product when they saw it, and were told about it by their friend.

"After I got home last night wife made hot biscuits, and we had some of that honey you gave us. Say, it was good. Can't you send us twenty pounds by parcel post?" might well be the text of a letter to a farmer from a friend. The new rate would allow the sending of twenty pounds for fifteen cents within 150 miles from the farmer's postoffice. Every farmer has many relatives and friends he can drop a line to, and sell a great deal of honey this way. In fact, I know of an Iowa farmer who has already shipped some five hundred pounds this way, solely on orders got from letters written to friends who knew by experience the value of his products.

WHERE THE MAN HIMSELF IS IMPORTANT.

The whole thing is marketing it yourself, saving the middleman's and several other betwixt men's profits on your own goods. Get a small rubber stamp, and stamp your name and address on each section. You will be surprised at the number of orders it will bring. Be sure your honey is clean, and that the surface of the sections is cleaned. Appearance forms an important price in grading, and grading makes the price. Don't sell combs which are broken and leaky. Poor honey on the market lowers the price of all other honey there. Most people will buy any thing because it is cheaper. Poor honey is always put out at a lower price.

I am pleased to note there seems to be just now an unusual movement to get producer in touch with consumers. Even the manufacturers of poultry-netting and fencing are offering to send fencing direct to farmers, and, more still, no pay until 30 days' trial. The Kitselman Fence Co. (see advertisement) send their fencing anywhere, and if not satisfactory in price and in every other respect they pay the freight back again. Send to Muncie, Ind., for their elaborate catalog.

"TERRY AND TEMPERANCE."

Friend Root:—I shall be 77 years old next February, and have practiced Terry's methods for years, and do almost as much work now as I did 40 years ago.

Doesn't it do you good to see how the drys are gaining! We have a real President at Washington now.

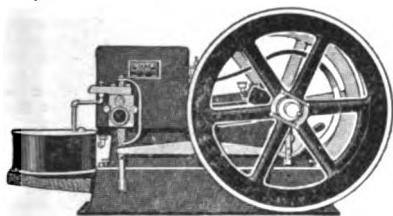
Belleville, Ill., Jan. 26.

E. T. FLANAGAN.

Now! Let me send you a WITTE Engine to earn its own cost while you pay for it.



DON'T break your back or waste time doing an engine's work. . . Iron and steel are cheaper than muscle; and kerosene oil, cheaper than time. I furnish the power of 10 men's work for 3½¢ an hour; 30 men's work for less than 80¢ a day, cost of engine included.



WITTE ENGINES

Kerosene, Gasoline and Gas
Made in sizes 1½, 2, 4, 6, 8, 11, 12, 15, 20, 25, 30 and 40 H.P. Stationary, Portable, Skidded and Sawing Styles. Standard the world over for all shop and farm power uses. Over 97 years ago I made my first engine and gave it my name, and ever since I have kept the active building of every WITTE engine in my own hands. I know every engine I ship, inside and out, and am making lower engine prices than this country has ever seen, while delivering engines that can't be beat.

60 DAYS FREE TRIAL

5-YEAR GUARANTY

Why take chances on a poor, or an unknown engine for any price when the WITTE is so cheap; when it is sold on any easy reasonable payments; and under a stronger money-back guarantee than any manufacturer has ever yet dared to sign?

SEND COUPON for MY BIG OFFER

Let me send you my Free Book, the finest in the whole engine business. Learn the cost of past high prices, and why I can undersell the whole field, and giving unmatched quality. Let me tell you by return mail how easily you can own a WITTE.

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1900 Oakland Avenue, Kansas City, Mo.

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Without obligation on my part, send me, by return mail, free, your New Book; and tell me how I can own a WITTE engine so it can earn its own cost while I am paying for it.

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Made of OPEN HEARTH STEEL WIRE. Proven by tests to be the most durable wire produced. Heavily Galvanized with PURE ZINC. Sixty different styles and heights, each a satisfying-quality fence.

WE SELL DIRECT TO THE FARMER AT DEALER'S PRICES.

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26-inch Hog Fence, - - 14c. per rod.

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48-inch Poultry Fence, - - 22½c. per rod.

Special Barbed Wire, \$1.40 per 80-rod Spool.

Sold on 30 DAYS FREE TRIAL. Get in with the shrewd buyers by sending for our big free Catalogue. It's full of fence bargains. Write for it today.

COILED SPRING FENCE CO.
Box 101 Winchester, Indiana

KITSELMAN FENCE



We make you the same price we would make the Dealer or Jobber. That is why we can save you money. Look at these very low prices.

14 CENTS A ROD

for 26-in. hog fence

23½c. a rod for 49-in. farm fence

25½c. a rod for 60-in. poultry fence

\$1.40 for 80 rod spool of Ideal

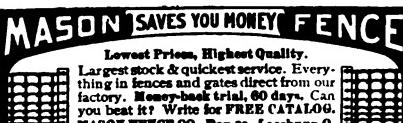
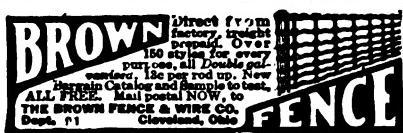
Barbed Wire. Large free Catalog showing 100 styles of Farm, Poultry and Lawn Fence. **KITSELMAN BROS. Box 21 Munroe, Ind.**



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In my great Free Book "HATCHING FACTS" the winners of the Belle City's Eight World's Championship Hatcheries tell the story of their money making, prize winning success with the Belle City in their own words. The book has scores and scores of success stories by Belle City owners. More than a quarter of a million poultry raisers use my

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the kind used by the U.S. Government, and leading agricultural colleges—the kind that makes world's championship prize winners.

With the free book will send you my price list of hatching boxes. Write for the book today. It contains valuable information of interest to every member of the family. Shows how to make big money on a small investment. Write today.

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Freight
Prepaid
10 Years'
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YOUR HENS Farmers and Fanciers YOUR FARM YOUR MONEY

and Hens for Market or Show, contains Pictures of 30 Poultry Houses; tells cost to build; describes AMERICA'S LARGEST LINE OF INCUBATORS AND BROODERS—\$2.25 to \$48 each. Write today.

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Johnson wants you to get from it the same ideas that helped half a million other people make big profits with chickens.

It will show you how easy it is to get started and how simple the work is with the Old Trusty Hatcher.

There is no mystery about chicken raising once you get acquainted with the Johnsons, and that's easy—just your name and address on a postal will do.

OLD TRUSTY

Makes biggest average hatches in coldest or warmest weather—over 80 per cent guaranteed—in every state, everywhere.

Now used by three or four times as many people as those who use any other. The reason is—the Old Trusty is simple and easy to operate and always sure of success. No highfalutin' instructions needed.

It's the highest grade hatcher made. But Johnson's direct factory price is low because he operates the largest incubator factory in the world. Every buyer saves about \$5 because of this big factory.

Write your name today—get the book so you can give your income a good big boost with chickens.

Johnson pays freight and ships immediately.

JOHNSON,
Incubator Man,
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This is the year to add poultry to your bee business. Enormous demand for chickens and eggs, on account of meat shortage, boosts prices highest ever. Let out great Free Service guide you. Free for the asking. Start right with

CYPHERS INCUBATORS and BROODERS

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This perfect fuel feeder has sounded the death knell of carburetors, and is the only thoroughly successful device for feeding kerosene, gasoline, distillate, etc., without change of equipment. It is revolutionizing the engine business. Bessemer two-cycle engines are simple—only three moving parts—are constant and steady as clocks. 2 to 350 H.P. Immediate shipment. Fuel and crude oil engines up to 165 H.P. Write for Catalog A-14.

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Pays for itself in fuel saved

20 Reasons Why You Should Investigate the SANDOW Kerosene Stationary ENGINE

It runs on kerosene (coal oil), gasoline, alcohol or distillate without change of equipment—starts without cranking—runs in either direction—throttle governed—hopper cooled—speed controlled while running—no cams—no valves—no gears—no sprockets—only three moving parts—portable—light weight—great power—starts easily at 40 degrees below zero—complete, ready to run—children operate them—5-year ironclad guarantee—15-day money-back trial. Sizes 2 to 20 horsepower.

Send a postal card for free catalog which shows how Sandow will be useful to you. Our special advertising proposition saves you one-half cost of first engine sold in your county. (164)

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"Took just 3 minutes to put very dull ax in perfect order," writes J. A. Sudan, of Newark, Del. DIMO-GRIT is the artificial diamond sharpening wheels, quickly and easily sharpen plow points, saws, axes, sickles, ensilage knives, and all farm tools.

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Metal frame, enclosed shaft drive, dust-proof bearings, runs easy as sewing machine, 25 times faster than grindstone, 10 times better than emery. Will not draw temper. Special attachments: forge, milk tester, jig saw, rip saw, lathe, drill, etc. Fully guaranteed. Write for free book on tool grinding and liberal free trial offer. Luther Grinder Mfg. Co. 846 So. Water St. Milwaukee, Wis.

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will sow, cultivate, ridge, harrow, etc., better than you can with old-fashioned tools and ten times quicker. A woman, boy or girl can do it. Can plant closer and work these hand tools with less fatigue, rest, 38 combinations from which to choose at \$2.50 to \$12. One combined tool will do all of the work.

Ask your dealer to show them and write us for booklet, "Gardening With Modern Tools" and "Iron Age Farm and Garden News" both free.



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Guaranteed 1914 Models \$7 to \$12 with Coaster-Brakes and Puncture-Proof Tires.

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gives twice the results with same labor and fluid. Also for spraying trees, vines, vegetables, etc. Agents Wanted. Booklet free. Rochester Spray Pump Co., 207 Broadway, Rochester, N.Y.

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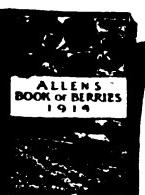
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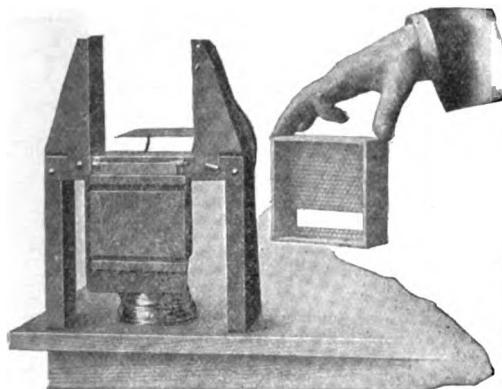
the all-important tool of the most extensive honey producers of the world. This illustration shows the remarkable steel fire-grate which such men as Mr. France, Mr. Rauchfuss, the Dadants, and others say is the best on the market. . The Smoke Engine grate has 381 holes for air and draft—equal to an opening two inches square. Buy the large sizes and be pleased. For sale at your dealers or direct.

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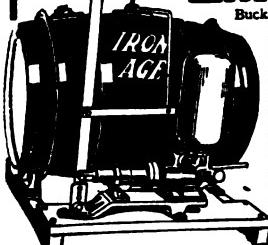
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By feeding raw bone. Its egg-producing value is four times that of grain. Eggs more fertile, chicks more vigorous, broilers earlier, fowls heavier, profits larger.

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Cuts all bone with adhering meat and gristle. Never clogs. 10 Days' Free Trial. No money in advance.

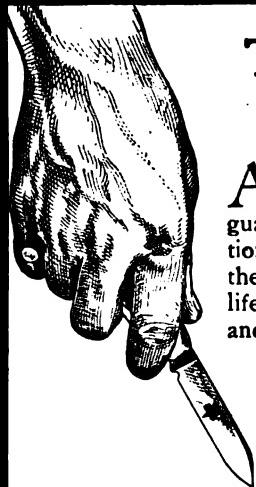
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There is money in Bees if you know how. Make a good living from Bees or keep down the high cost of living. Always a good demand for men who know Bee Culture. Just the opportunity you have been wanting—learn at home. You can make your spare time count and finish this course this winter by beginning now. This excellent course prepared by E. R. Root, foremost exponent of Scientific Beekeeping. Also splendid correspondence courses in General Farming, Truck—North and South, Poultry, Fruit, Flowers, Greenhouse, Soils, Dairying, Farm Management, Farm Book-keeping, Farm Veterinary, Writing for the Farm Press, Mushrooms, Ginseng, etc. Original and largest school devoted exclusively to teaching farming by mail. Write to-day for Free Booklet "How to Make the Farm Pay More," also temporary low rate, easy terms, full particulars. (Which course interests you?) (No agents.) Free sample lesson from General Farming Course on request.

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ANY Keen Kutter pocket knife is the king bee of quality. It is guaranteed for *that*. It has the gumption and finish, the live, strong steel and the capacity for hard work and long life that puts all Keen Kutter cutlery and tools in a class by themselves.

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*"The Recollection of Quality Remains
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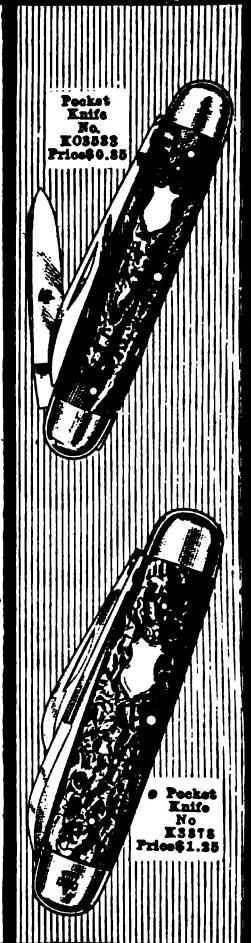
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Think of getting a fine buggy—*better* than others your friends pay \$25.00 to \$40.00 more for. A buggy that will make you the envy of all your fellows. Think of getting it to try out on the road free for 30 days and guaranteed for two years! Write for this book today.

And Phelps offers you the choice of an immense number of 1914 buggy styles to choose from. More than 40 local carriage shops "rolled into one" could ever show you. Address
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Every Buggy Sold on 30 Days'
FREE Trial Absolutely
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It Shows You
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Don't doubt this! Send for this book and prove it to yourself! Do that today! It costs you nothing, 200,000 men know by experience that this is so! They saved at least \$25.00 to \$40.00 on every buggy they bought *after* they got Phelps' book. And they got the best buggies made—just as you will. Buggies made of the finest Second-growth Hickory *split*, not sawed. Phelps make the famous—



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Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the Classified Columns or we will not be responsible for errors.

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See our special sale of honey on advertising page 7 of this issue. THE A. I. ROOT CO., Medina, Ohio.

FOR SALE.—Choice extracted honey in new 60-lb. cans at 9 cts. per lb. J. P. MOORE, Morgan, Ky.

FOR SALE.—Finest quality buckwheat honey in cans and kegs. Clover honey all sold. C. J. BALDRIDGE, Kendalia, N. Y.

FOR SALE.—3000 lbs. of fine extracted honey in 60-lb. cans, 7½ cts. per lb. GEORGE RAUCH, Orange Mountain Bee Farm, Guttenberg, N. J.

FOR SALE.—Aster, goldenrod, yellow-top honey-blends, fine quality, 5½ cts. per lb. JOE C. WEAVER, Cochrane, Ala.

FOR SALE.—No. 1 buckwheat comb, \$8.00 per case, 24 sections to case. JOSEPH M. ELSBREE, Waverly, N. Y.

FOR SALE.—Several tons of raspberry-milkweed honey (mostly milkweed) in new 60-lb. cans (two in a case), a very fine honey. Write for price. Small sample free. P. W. SOWINSKI, Bellaire, Mich.

FOR SALE.—White-clover honey, none better. In 10-lb. pails, six in a case, at \$6.50 per case; 5-lb. pails, 12 in a case, at \$7.00 per case; ½-lb. glass jars, 24 in a case, at \$2.80 per case. Sample, 4 cts. Also in 60-lb. cans, very nice amber honey. HENRY STEWART, Prophetstown, Ill.

FOR SALE.—Blended raspberry, buckwheat, and goldenrod honey; has a thick body and a strong and very rich flavor. Put up for sale in new 60-lb. tin cans. Price \$5.00 a can. Sample by mail, 10 cts., which may be applied on an order for honey. ELMER HUTCHINSON, Pioneer, Mich.

FOR SALE.—No. 1 white comb, \$8.25 per case; No. 2 white, \$2.75. No. 1 fall comb, \$2.75 per case; No. 2 fall, \$2.50 per case. All cases have 24 sections to case, and six cases to carrier. Amber extracted, 8 cts. QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

HONEY AND WAX WANTED

WANTED.—Comb, extracted honey, and beeswax. R. A. BURNETT & CO., 178 So. Water St., Chicago.

WANTED.—Comb honey and beeswax. State what you have and price. J. E. HARRIS, Morristown, Tenn.

WANTED.—Honey, extracted and comb. Will buy or handle on commission. Beeswax—will pay highest price. HILDRETH & SEEGLEN, New York, N. Y.

FOR SALE

For bees, queens, or material—typewriters, violins, printing-press, write E. C. BIRD, Boulder, Col.

FOR SALE.—A full line of Root's goods at Root's prices. A. L. HEALY, Mayaguez, Porto Rico.

FOR SALE.—Full line of Root's goods at factory prices. E. M. DUNKEL, Osceola Mills, Pa.

Beekeepers, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap. WHITE MFG. CO., Greenville, Tex.

New crop of extra-fine quality alfalfa seed, \$6.50 per bushel; sacks, 25 cts. extra; also some sweet-clover seed. R. L. SNODGRASS, Augusta, Kan.

FOR SALE.—Empty second-hand cans, two cans to the case; good as new; 25 cts. per case. C. H. W. WEBER & CO., Cincinnati, Ohio.

FOR SALE.—Better hive for less money. Beekeepers' supplies and standard-bred Italian bees. Write for catalog. A. E. BURDICK, Sunnyside, Wash.

The best of bee goods for the least money. Send for new catalog. Satisfaction guaranteed or money refunded. H. S. DUBY & SON, St. Anne, Ill.

FOR SALE.—Root's goods and Dadant's foundation at factory prices. SPENCER APIARIES, Nordhoff, Cal.

FOR SALE.—500 lbs. yellow biennial sweet-clover seed at \$14.00 per bushel of 60 lbs., hulled seed. R. L. SNODGRASS, Harrisburg, Col.

FOR SALE.—Root's goods at factory prices. Fresh stock and prompt accurate service. Let's get acquainted. L. W. CROVATT, box 134, Savannah, Ga.

FOR SALE.—New 7 H. P. twin cylinder Indian motorcycle, 1913 model. Will trade for bees or supplies. Address J. E. HEBERT, Bad Axe, Mich.

We are among the largest growers of alsike clover in this country, and offer good clean seed. Bushel, \$11.00; half bushel, \$6.75; peck, \$8.00. C. J. BALDRIDGE, Homestead Farm, Kendalia, N. Y.

FOR SALE.—40 second-hand 8-frame dovetailed one-story hives with Hoffman frames; 96 supers for the same, complete with slotted separators, slats, and springs, for 4¼ x 1¾ sections, all in good condition—some hives never used. No disease. Price \$60.00 for the lot if taken soon. CURTIS SMITH, Superior, Neb.

The Beekeepers' Review Clubbing List: The Review and Gleanings one year, \$1.50. The Review and American Bee Journal one year, \$1.50. All three for one year only \$2.00. Dealers or those wanting to buy honey kindly ask for a late number of the Review having a list of 100 producers having honey for sale. Address THE BEEKEEPERS' REVIEW, Northstar, Mich.

The National Beekeepers' Association now buys supplies for their members. Send us your order, enclosing the same money you have to pay others, and we will buy them for you on the co-operative plan. If not a member we reserve the right to retain \$1.50 from the profits on your first order to pay your membership dues and subscription to the Review one year. Sample copy of the Review free. Address NATIONAL BEEKEEPERS' ASSOCIATION, Northstar, Michigan.

REAL ESTATE

Virginia orchards pay handsome profits. Good fruit lands in the famous apple belt \$15 an acre up. Easy payments. Send names of two friends interested in Virginia and receive our beautiful magazine one year free. F. H. LABAUME, Agr'l Agt. Norfolk & Western Ry., Room 246, N. & W. Bldg., Roanoke, Va.

Facts About the Southeast. Farm lands average less than \$17 per acre. Beef, pork, dairying, and poultry make big profits. Large returns from alfalfa, cotton, corn, truck, fruits, and nuts. Good local and nearby markets. Ample rain, mild winters, enjoyable summers. Industrial openings everywhere. "The Southern Field" Magazine and State booklets free. M. V. RICHARDS, Land and Industrial Agent, Southern Ry., Room 27, Washington, D. C.

WANTS AND EXCHANGES

WANTED.—250 colonies of bees, from a location free from disease. Box 3770, GLEANINGS, Medina, O.

Will buy bees. Myself examine, pack, and ship. Write F. A. ALLEN, Philipsburg, Que.

WANTED.—Bees in lots of 25 to 300 colonies, preferably within 250 miles of Detroit, Mich. A. W. SMITH, Birmingham, Mich.

WANTED.—Ten hives of bees in ten-frame Langstroth hives in or near Chicago, Ill. ROBERT KROSCHEL, 3226 Osgood St., Chicago, Ill.

WANTED.—To buy bees for June delivery, standard L. hives or three-frame nuclei. WM. R. GANTLEY, 113 State St., Binghamton, N. Y.

WANTED.—To furnish every beekeeper within 500 miles of Boise, Idaho, with the best and cheapest bee supplies on the market, *quality considered*. Send me your order or a list of your requirements for 1914. Our catalog and price list will be mailed to you free. Order early and get the discounts.

C. E. SHREVEE, Boise, Idaho.

WANTED.—A partner for one-third undivided interest in a 240-acre tract of heavy hammock land on the Indian River, Fla., a few miles below Daytona, Volusia Co. Ideal citrus land; flowing wells can be had anywhere on property; a mile and a quarter river front, with beautiful building sites on Key. Write if interested. EDWIN G. BALWIN, DeLand, Fla.

BEES AND QUEENS

Phelps' Golden Italian Queens will please you. C. W. PHelps & SON, 3 Wilcox St., Binghamton, N. Y.

FOR SALE.—50 to 200 colonies, eight-frame, first-class. E. F. ATWATER, Meridian, Idaho.

Am booking orders now for three-band Italian queens. J. I. BANKS, Liberty, Tenn.

Pure Italian bees or their hybrids, in L. 10 frames, wired, full foundation, 1 or 100. JOSEPH WALRATH, Antioch, Cal.

FOR SALE.—150 colonies or carload of Italian bees in ten-frame Langstroth hives, in Missouri. Address R. F. HOLTERMANN, Brantford, Ont., Can.

Golden-yellow Italian queens my specialty. Un-tested, \$1.00; tested, \$1.50. Ready April 1. Safe arrival guaranteed. E. A. SIMMONS, Greenville, Ala.

FOR SALE.—200 colonies of Italian bees at \$5.00 per colony. G. H. ADAMS, Spring and Central Ave., Troy, N. Y.

California Golden queens produce the bright workers, equal to any. Tested, \$1.25 to \$2.50; mated, 75 cts.; 12, \$8.00; 50, \$32; 100, \$60. W. A. BARSTOW & CO., San Jose, Cal.

FOR SALE.—Golden Italian queens that produce golden bees; for gentleness ad honey-gathering they are equal to any. Every queen guaranteed. Price \$1.00; 6 for \$5.00. WM. S. BARNETT, Barnett's, Va.

Italian bees in pound packages and on comb our specialty; 30-page catalog giving beginners' outfit free; also queens. THE DERROY TAYLOR CO., Lyons, N. Y.

1914 QUEENS.—Moore's strain of leather-colored Italians in April at 75 cts. Also bees by the pound, nuclei, tested queens. Write for prices on nuclei. Address OGDEN BEE AND HONEY CO., Ogden, Utah.

FOR SALE.—Several yards of bees on five years' time and easy terms of payment. No disease, and best of locations. All we ask is that you help us work these bees for several months this year to show your ability to manage them. Further particulars on request. SPENCER APIARIES CO., Nordhoff, Cal.

Phelps' Golden Italian Bees are hustlers. C. W. PHelps & SON, 3 Wilcox St., Binghamton, N. Y.

FOR SALE.—20 colonies, eight-frame hives, two supers to hive, heavy with stores. Delivered on car Carlisle or Mt. Sterling, Ky. \$5.00 per colony.

RAYMOND SMATHERS, Sharpsburg, Ky.

FOR SALE.—500 hives of bees located in five different yards in the Kankakee swamp. Full equipment of everything needed in bee business. Write for particulars. MRS. F. B. CAVANAGH, Hebron, Ind.

Save those queenless colonies by ordering a tested three-banded Italian queen. One for \$1.25; six for \$10.00. These queens are guaranteed to please you, or your money refunded.

B. M. CARAWAY, Mathis, Texas.

Queens ready in May. J. E. Hand strain of three-band Italian, bred for gentle honey-gathering, and wintering. Write for price list and free booklet, "How to Transfer, Get Honey and Increase."

J. M. GINGERICH, Arthur, Ill.

Phelps' Golden Italian Queens combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; six, \$5.00; tested, \$3.00; breeders, \$5.00 and \$10.00. C. W. PHelps & SON, 3 Wilcox St., Binghamton, N. Y.

FOR SALE.—250 colonies of bees, 100 sets empty combs, 540 supers, sections, foundation, bait combs, extractor, and tanks. Every thing ready for business.

J. H. WARNER & SON, Middleburg, Schoharie Co., N. Y.

Queens and Bees for Sale.—See our large advertisement elsewhere in this journal, and read The A. I. Root Co. letter to us regarding our queens. Write at once for large bee and queen circular.

THE PENN CO., Penn, Miss.

FOR SALE.—Italian queens, bees by pound. Descriptive list free. Apiaries under State inspection. Leaflets, "How to Introduce Queens," 15 cts.; "How to Increase," 15 cts.; both 25 cts.

E. E. MOTT, Glenwood, Mich.

Golden Italian queens that produce golden bees, the brightest kind, gentle, and as good honey-gatherers as can be found. Each, \$1.00; six, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00. J. B. BROCKWELL, Malvern Hill, Va.

Queens bred from Moore's and Doolittle's best Italian stock; untested, 60 cts. each; \$6.60 per doz.; \$50.00 per 100. Tested, 90 cts. each, \$10.20 per doz.; \$80.00 per 100. Delivery guaranteed. Book orders now. Nuclei, any quantity, two-frame, \$1.50; three-frame, \$2.00. Add price of above queens wanted. SPENCER APIARIES CO., Nordhoff, Cal.

Goldens and three-band Italians, ready March 1. They have been bred for three points—prolificness, gentleness, and honey-gathering qualities. Select untested, each, 75 cts.; 6, \$4.25; 12, \$8.25; 50, \$32.50; 100, \$60.00. Tested, \$1.50; select tested, \$2.00; three-banded breeders, \$4.00; golden breeders, \$5.00. GARDEN CITY APIARY CO., Rt. 3, Box 86, San Jose, Cal.

FOR SALE.—Swarms of bees in packages. Replace your winter losses and strengthen weak colonies with young, healthy Italian bees; ½-lb. packages, 90 cts. each; 1-lb. packages, \$1.25 each; 2-lb. packages, \$2.45 each. Young, untested, three-banded Italian queens, 75 cts. each. We guarantee satisfaction and safe arrival. Write for circular and complete price list.

BROWN & BERRY, Hayneville, Ala.

EARLY QUEENS.—Those who desire early queens can be supplied by sending orders to us. Only three-band Italians stand the severe test against diseases, and our bees are clean. Unested queens, \$1.00 each; \$4.25 for six; \$8.00 per dozen. Always safe arrival and satisfaction to everybody. If you desire queens in large lots early, better let us book you as soon as convenient, and money can be sent when queens are wanted. Your check is good, or any way you wish to remit.

THE RIALTO HONEY CO., Box 73, Rialto, Cal.

Dunn's Golden Italian queens, bred strictly for business, that produce a strong race of honey-gatherers, March 1 to Oct. 15; One, mated, 75 cts.; 6, \$4.25; 12, \$8.25; 50, \$32.50; 100, \$60.00. Tested, \$3.00; breeders, \$10.00. L. J. DUNN, Queen-breeder, Box 337G, Rt. 6, San Jose, Cal.

FOR SALE.—Three-banded Italian queens, nuclei, and bees by the pound. March 15 to June 15, untested queens, each, 75 cts.; 6, \$4.25; 12, \$8.25; tested, each, \$1.25; 6, \$7.25; 12, \$14.00. Bees by pound: 1-lb. package, \$1.25; 6, \$7.25; 12, \$14.00. If you wish a queen with bees by the pound add price of queen. Write for circular and complete list.
BROWN & BERRY, Hayneville, Ala.

FOR SALE.—California Italian queens, Goldens and Three-banders by return mail after March 15; select untested, 75 cts.; 12, \$8.00; tested, \$1.00; breeders, \$3.00. Bees by the pound a specialty, ready April 1; 1 lb., \$1.25; 2 lbs., \$2.25; large lots, less. Booking orders now. Deliveries and satisfaction guaranteed. Correspondence solicited. Circular free. J. E. WING, 155 Schiele Ave., San Jose, Cal.

GOOD QUEENS.—Good queens are a real necessity in any apiary if best results are to be expected. The old leather-colored three-band Italians have proven themselves to be the best general-purpose bee extant. These I can supply in any quantity you may wish. Untested, \$1.00 each; \$4.25 for six; \$8.00 per doz. Safe arrival and satisfaction. All orders will have prompt attention.

E. J. ATCHLEY, Bloomington, Cal.

FOR SALE.—Early swarms at fall prices; $\frac{1}{2}$ -lb. bees, \$1.00; 1 lb. bees, \$1.50. Add price of queen if wanted. Untested three-band Italian queens, 75 cts. each; tested Italian queens, \$1.25 each. These are bred from best honey-gathering strain. No disease. Safe arrival and satisfaction guaranteed. This is undoubtedly the best way for Northern honey-producers to increase and improve their stock. Delivery begins about April 5. Capacity, 40 swarms per day.
W. D. ACHORD, Fitzpatrick, Ala.

Dixie swarms direct to you in April. Stop and think for half a minute what a small package of bees or nuclei would do it put on those unoccupied combs early in the spring. The cost is just a drop in the bucket, and your 1914 honey crop may be doubled. Bees by the pound, nucleus, and queens shipped during April. Carefully selected stock. Excellent express and mail service. Prices low. Save money by writing at once for our price list and estimate on your order.

CONNEAUT LAKE BEE CO., Meldrim, Georgia.

Many men of many minds; but the minds of practical beekeepers are turned toward the old reliable three-band Italians. We have them in their purity, new blood, new importation. Untested queens from March to June, \$1.00 each; \$4.25 for six, or \$8.00 per dozen; safe arrival and satisfaction to all customers. Write for prices on large quantities. You do not have to return dead queens to us—just state it so on a postal card, and queens dead on arrival will be replaced promptly.

THE GOLDEN RULE BEE CO., Riverside, Cal.

POULTRY

Rhode Island Reds. Strong baby chicks for sale. Write me. E. O. WALTZ, Medina, Ohio.

Eggs for hatching, S. C. White Orpingtons. Matting list free. JAMES R. LAMPSON, box B, Medina, O.

Silver-penciled Wyandotte eggs from exhibition pens, \$2.50 per setting of 15. FRANK CLARK, Ridott, Ill.

Stock and eggs for sale, all leading varieties; also geese and Belgian hares. Catalog free. LEVI STUMB, Richland Center, Pa.

Pure-bred Indian Runner ducks, snow-white eggs, 15 for \$1.00; 100 for \$6.00. J. C. WHEELER, 921 Austin Boul., Oak Park, Ill.

Silver Campines are money-makers. I offer first-class stock, \$10; \$12 per trio.
ELMER W. PALMER, Catskill, N. Y.

Pure white and fawn and white Indian Runners, Pekins. Catalog free. White-egg strains. THE DEBOY TAYLOR CO., Lyons, N. Y.

Eggs for sale. Rhode Island Reds and Barred Rocks, \$1.00 per 15. H. J. RODENBERG, Rt. 4, Metropolis, Ill.

LEGHORNS.—Eggs for hatching. S. C. W. Leghorns, \$5.00 per 100; \$1.00 per 15. Send for catalog. WOODWORTH FARM, Wilton, Ct.

Eggs.—20 for \$1.00; leading varieties prize poultry, pigeons, hares, etc. Booklet free. Large illustrated catalog, 10 cts. F. G. WILE, Telford, Pa.

Corning strain direct, S. C. W. Leghorn eggs and day-old chicks for sale. The strain that weigh, lay, and pay. Also B. P. Rocke at farmers' prices. F. J. ARMSTRONG, Nevada, Ohio.

Kellerstrass Crystal White S. C. Orpingtons. Eggs for hatching, \$3.00 per doz. Shipped same day order is received from prize-winners. Trained Cocks for sale and stock. Write for prices. Eggs tested. AUCHURCH, Charleston, S. C.

Rhode Island Reds, Partridge Wyandottes, Motley Anconas, White Leghorns, White Cornish; Pekin, Rouen, Fawn and White Indian Runner ducks; also pure-white Indian Runners and White Call ducks. Line-bred stock for sale. Eggs to set. Prices reasonable for high-class stock.

L. G. CABY, Trimble, Ohio.

MISCELLANEOUS

Belgian hares, breeders, and youngsters. List free. HARVEY L. STUMB, Quakertown, Pa.

Yorkshire Swine Monthly Magazine, 50 cents per year. YORKSHIRE SWINE PUBLISHING CO., Franklinville, N. Y.

FOR SALE.—Dahlia roots, 2 cts. each and up-green flowering, and 100 other colors. Soy beans, Thornless raspberry. Circular free.
JACOB MCQUEEN, Baltic, Ohio.

Runner Duck Eggs.—Fawn, white-egg strain, \$1 per 12 eggs. Single-comb R. I. Red eggs, and day-old chicks, Tompkins strain.

SARAH WIDRIG, Rt. 29, Burt, N. Y.

Pigeons! Pigeons! Thousands, all breeds; lowest prices; satisfied customers everywhere. Start with our \$3\$-making Jumbo Squab-breeders. Large, free, instructive, illustrated matter.

PROVIDENCE SQUAB CO., Providence, R. I.

HELP WANTED

WANTED.—Another young man of good habits, who is interested, to work with bees and on farm for coming season. Have nearly 1000 colonies.

N. L. STEVENS, Venice Center, N. Y.

WANTED.—Man (married preferred) experienced in queen-raising; employment by the year on a salary and percentage.

OGDEN BEE AND HONEY CO., Ogden, Utah.

WANTED.—A young man of good character to work in our honey-producing yards and queen-rearing department. Please state experience and wages expected in first letter. We furnish board.

BROWN & BERRY, Hayneville, Ala.

Serve a season's apprenticeship with a well-known firm. E. D. TOWNSEND & SONS, Northstar, Mich., can use a "green" hand during the season of 1914; 39 years in the business; 7 yards for extracting honey. Board, and perhaps more to an adept student. Commence April 1. Write us.

WANTED.—Single young man with some experience for season of 1914, beginning about the middle of May; must be strictly temperate, industrious, and willing to work hard in the busy season. State age, experience, and wages expected, with board supplied, in first letter. Give references.

EWARD MCVEY, Woodburn, Ontario, Can.

BEEKEEPERS' DIRECTORY

If you need queens by return mail send to J. W. K. SHAW & Co., Loreauville, Iberia Parish, La.

Nutmeg Italian queens, leather color, after June 1, \$1.00. A. W. YATES, Hartford, Ct.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortland St., New York.

QUEENS.—Improved red-clover Italians bred for business, June 1 to Nov. 15, untested queens, 75c. each; dozen, \$8.00; select, \$1.00 each; dozen, \$10; tested queens, \$1.25 each; dozen, \$12.00. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Boyd, Ky.

Quirin's famous improved Italian queens, nuclei, colonies, and bees by the pound, ready in May. Our stock is northern-bred and hardy; five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices, send for circular.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio

SPECIAL NOTICES

BEESWAX.

Market on beeswax still continues firm, and supplies limited. While we have received a goodly number of shipments we could use it in still larger quantities, as it takes over 20,000 pounds a month to keep our wax-room going and meet the orders which come. We will pay, till further notice, 33 cents cash, 35 in trade, for average wax delivered at Medina, with a premium for choice yellow; 1 cent a pound less delivered at branch offices.

"ANSWERS TO 150 QUESTIONS COMMONLY ASKED ON BEES"

is the title of a new booklet in the press of The A. I. Root Co. The preliminary announcement of it in our general catalog has made an enormous demand for it already; but we have decided to send it to all subscribers who send in \$1.00 before their subscriptions expire, free. The booklet contains 71 pages, and is packed full of useful information. It has an elaborate index so that one can locate just the precise information he is seeking. These answers are taken largely from letters from our subscribers, and cover a very wide field. Some of the information given is not comprised in our text-books. The book will be ready to send out by March 1st.

SWEET-CLOVER SEED.

Since our last report we have received a lot of choice unhulled white seed from Oregon, and have on the way from Nevada another shipment of hulled white. We have also secured a supply of hulled biennial yellow for our stock here as well as in Des Moines, Iowa. We have sold out on the lot of mixed white and yellow unhulled, and have no more of that to furnish. We still have some of the mixed white and alfalfa which we can supply while it lasts, at prices quoted in former issues. Present prices on sweet clover are as follows:

	Prices in lots of 1 lb.	10 lb.	25 lb.	100 lb.
<i>Melilotus alba, biennial:</i>				
White sweet clover, unhulled	.23	\$2.10	\$5.00	\$19.00
White sweet clover, hulled	.80	2.80	6.75	26.00
<i>Melilotus officinalis, biennial:</i>				
Yellow sweet clover, unhull'd	.21	1.90	4.50	17.00
Yellow sweet clover, hulled	.28	2.60	6.25	24.00
Yellow sweet clover, annual	.14	1.20	2.75	10.00

ALSIKE AND MAMMOTH CLOVER SEED.

The market on clover seeds seems somewhat easier than it has been, and we quote choice alsike seed at \$23.00 for 2 bushels; \$11.75 for one bushel; \$6.00 for $\frac{1}{4}$ bushel; \$3.25 for 1 peck; 25 cts. per lb., not prepaid.

Mammoth or Peavine: \$19.00 for 2 bushels; \$9.75 for one bushel; \$5.00 for $\frac{1}{2}$ bushel; \$2.75 per peck; 22 cts. per lb., not prepaid; bags included in each case.

SAN FRANCISCO OFFICE.

To handle correspondence with our Pacific Coast customers more rapidly, and to serve their interests better, we have opened an office in the Hotbrook Building, 58 Sutter St. (near Market St., and only a few blocks from the Ferry). The office will look after the interests of all classes of our trade, retail, wholesale, and export, and we request every one interested in any way in Root's goods to avail themselves of the facilities offered by this Pacific Coast branch. From San Francisco we can often direct beekeepers to nearby dealers at various points on the Coast where certain of our goods may be had, thereby saving long delays and high transportation, etc. This office will at all times be fully informed on all matters relating to Coast business from the home office, such as movement of cars to various distributing dealers, etc.

STOCKS.

In addition to the stocks carried by dealers in various points on the Coast where our goods may be obtained a fair assortment of standard goods from our catalog will be carried in San Francisco available for the beekeeper and dealers alike. Particulars regarding stock on hand in San Francisco furnished promptly at any time.

SECOND-HAND FOUNDATION MILLS.

We have to offer the following list of foundation machines which have been used, but are in fair condition. In many cases they will answer as well as a new machine where you have only a moderate outfit. Send for samples of any mill in the list which may interest you.

No. 0139, $2\frac{1}{4} \times 6$ hexagonal thin-super mill, in very good condition. Price \$14.00.

No. 0140, $2\frac{1}{4} \times 6$ hexagonal thin-super mill, in very good condition. Price \$14.00.

No. 0142, $2\frac{1}{4} \times 6$ hexagonal thin-super mill, in fair shape. Price \$10.00.

No. 0158, $2\frac{1}{4} \times 6$ hexagonal thin-super mill, in very good condition. Price \$14.00.

No. 0154, $2\frac{1}{4} \times 6$ hexagonal thin-super mill, in very good condition. Price \$14.00.

No. 0156, $2\frac{1}{4} \times 6$ extra-thin-super mill, fair. Price \$10.00.

No. 0165, $2\frac{1}{4} \times 6$ hexagonal extra-thin-super mill in fair condition. Price \$12.00.

No. 0176, $2\frac{1}{4} \times 6$ extra-thin-super mill in fair condition. Price \$12.00.

No. 0180, $2\frac{1}{4} \times 6$ hexagonal thin-super mill, in fair condition. Price \$10.00.

No. 0183, $2\frac{1}{4} \times 6$ hexagonal thin-super mill, very good condition. Price \$14.00.

No. 0207, $2\frac{1}{4} \times 6$ hexagonal cell thin-super Dunham mill in good condition. Price \$10.00.

SPECIAL NOTICES

A. I. Root

DASHEEN TUBERS BY MAIL, ETC.

In our issue for Feb. 1 I spoke of parcel post, while the fact is, dasheen for planting come under the heading of seeds, and can go anywhere for only 8 cts. per lb. postage; and unless it is for nearby zones, the rate will be less than by parcel post. On nearby zones, however, parcel-post rates will be much cheaper. Until recently the limit on packages of seed was 4 lbs., but now it is raised to 11 lbs. Your own postmaster should be able to give you the lowest rate on whatever you send out or send after; but I find postmasters are not all as well posted as they should be.

Alsike - Clover - Seed

Small Red, Large Red, White, Yellow Sweet Clover; Alfalfa, Timothy, Blue Grass, Millet, Rape, etc. Good Seed Corn in varieties. Seed leaflet and apiary-supply catalog free.

F. A. SNELL, . . . Milledgeville, Illinois
Carroll County

Three - banded Italian Bees and Queens!

Guaranteed safe arrival and satisfaction. Unested queens, 75 cts. each; \$7.50 per dozen. Tested, \$1.50. Choice breeders, \$3.00. Nuclei, \$1.25 per frame, good supply of bees. Half pound bees with queen, \$2.00. One pound bees with queen, \$5.00, full weight. Full colony in eight-frame hive with queen, \$6.50; in ten-frame, \$7.50. Best mail and express service in the South. Only 18 hours to St. Louis, Mo.

THE STOVER APIARIES, MAYHEW, MISSISSIPPI

FRENCH'S

THE ORIGINAL POULTRY MUSTARD IN AMERICA

Write to us for information.
Booklet and circulars free.

THE R. T. FRENCH COMPANY, Mustard-Makers
ROCHESTER, N. Y. Department D.

RAIN OR SHINE

Stevenot's Weather Cottage foretells weather changes 8 to 24 hours in advance. This little weather cottage is carefully made with thermometer, modeled stag-head and bird on front of building and birdhouse on roof.

The action is based on scientific principles, and is very accurate. In bad weather the man, with red umbrella, comes out, and in fair weather the lady appears.

Interesting to the entire family.

Every cottage fully guaranteed. Size 7-1/2 in. high. Sent parcel post prepaid in U. S. or Canada for \$1. Your money back if dissatisfied.

FRANK H. STEVENOT CO.

Dept. G, Cooper Union, New York City.

NON-SWARMING

and its application to Out-apiarries is fully outlined in the new booklet "The Management of Out-apiarries."

This is the new title of "A Year's Work in an Out-apairy," written by G. M. Doolittle, of New York, and again revised this past season. The writer has incorporated all of the new ideas that he has successfully worked out this past season, and we are now able to offer you the best there is at this time on the subject of running a series of yards with the least amount of time and labor. If you haven't any thing on this subject you ought to have a copy of this fourth edition. Price 50 cents postpaid.

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The A. I. Root Co., Medina, O.

This Washer Must Pay for Itself

A MAN tried to sell me a horse once. He said it was a fine horse and had nothing the matter with it. I wanted a fine horse. But I didn't know any thing about horses much. And I didn't know the man very well either.

So I told him I wanted to try the horse for a month. He said "All right, but pay me first, and I'll give you back your money if the horse isn't all right."

Well, I didn't like that. I was afraid the horse wasn't "all right," and that I might have to whistle for my money if I once parted with it. So I didn't buy the horse although I wanted it badly. Now this set me thinking.

You see I make Washing Machines—the "1900 Gravity" Washer.

And I said to myself, lots of people may think about my Washing Machine as I thought about

the horse, and about the man who owned it.

But I'd never know, because they wouldn't write and tell me. You see I sell my Washing Machines by mail. I have sold over half a million that way.

So, thought I, it is only fair enough to let people try my Washing Machines for a month, before they pay for them, just as I wanted to try the horse.

Now, I know what our "1900 Gravity" Washer will do. I know it will wash the clothes, without wearing or tearing them, in less than half the time they can be washed by hand or by any other machine.

I know it will wash a tubful of very dirty clothes in Six Minutes. I know no other machine ever invented can do that, without wearing out the clothes.

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It just drives soapy water clear through the fibers of the clothes like a force pump might.

So, said I to myself, I will do with my "1900 Gravity" Washer what I wanted the man to do with the horse. Only I won't wait for people to ask me. I'll offer first, and I'll make good the offer every time.

Let me send you a "1900 Gravity" Washer on a month's free trial. I'll pay the freight out of my own pocket, and if you don't want the machine after you've used it a month, I'll take it back and pay the freight too. Surely that is fair enough, isn't it?

Doesn't it prove that the "1900 Gravity" Washer must be all that I say it is?

And you can pay me out of what it saves for you. It will save its whole cost in a few months, in wear and tear on the clothes alone. And then it will save 50 cents to 75 cents a week over that in washwoman's wages. If you keep the machine after the month's trial, I'll let you pay for it out of what it saves you. If it saves you 60 cents a week, send me 50 cents a week till paid for. I'll take that cheerfully, and I'll wait for my money until the machine itself earns the balance.

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Address me this way—H. L. Barker, 1127 Court Street, Binghamton, N. Y. If you live in Canada, address 1900 Washer Co., 355 Yonge St., Toronto, Ontario.

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Gleanings in Bee Culture



VOL. XLII. MAR. 15, 1914, NO. 6

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Send for our foundation samples and new Red Catalog, postpaid.

Dealers Everywhere: New England States, Ross Bros. Co., 90 Front Street, Worcester, Mass.
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Western States, C. C. Clemons Bee Supply Co., 128 Grand Ave., Kansas City, Mo.
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HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market price at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), carriage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

NATIONAL BEEKEEPERS' ASSOCIATION GRADING RULES

Adopted at Cincinnati, Feb. 13, 1913.

Sections of comb honey are to be graded: First, as to finish; second, as to color of honey; and third, as to weight. The sections of honey in any given case are to be so nearly alike in these three respects that any section shall be representative of the contents of the case.

I. FINISH:

1. *Extra Fancy*.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, combs and cappings white, and not more than six unsealed cells on either side.

2. *Fancy*.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white, and not more than six unsealed cells on either side exclusive of the outside row.

3. *No. 1*.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white to slightly off color, and not more than 40 unsealed cells, exclusive of the outside row.

4. *No. 2*.—Comb not projecting beyond the box, attached to the sides not less than two-thirds of the way around, and not more than 60 unsealed cells exclusive of the row adjacent to the box.

II. COLOR:

On the basis of color of the honey, comb honey is to be classified as: first, white; second, light amber; third, amber; and fourth, dark.

III. WEIGHT:

1. *Heavy*.—No section designated as heavy to weigh less than fourteen ounces.

2. *Medium*.—No section designated as medium to weigh less than fourteen ounces.

3. *Light*.—No section designated as light to weigh less than ten ounces.

In describing honey, three words or symbols are to be used, the first being descriptive of the finish, the second of color, and the third of weight. As for example: Fancy, white, heavy (F-W-H); No. 1, amber, medium (1-A-M), etc. In this way any of the possible combinations of finish, color, and weight can be briefly described.

CULL HONEY:

Cull honey shall consist of the following: Honey packed in soiled second-hand cases or that in badly stained or propolized sections; sections containing honey-dew honey, honey showing signs ofulation, poorly ripened, sour or "weeping" honey, sections with combs projecting beyond the box or well attached to the box less than two-thirds the distance around its inner surface; sections with more than 60 unsealed cells, exclusive of the row adjacent to the box; leaking, injured, or patched-up sections; sections weighing less than ten ounces.

HONEY-GRADING RULES ADOPTED BY THE COLORADO STATE HONEY-PRODUCERS' ASSOCIATION,
DECEMBER 13, 1911.

FANCY WHITE:—Sections to be well filled, comb firmly attached to all sides and evenly capped except the outside row next to the wood. Honey, combs, and cappings white, and not projecting beyond the wood; wood to be well cleaned; no sections in this grade to weigh less than 13 $\frac{1}{2}$ ounces.

NO. 1.—Sections to be well filled, combs firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey white or very slightly off color. Combs not projecting beyond the wood; wood to be well cleaned; no section in this grade to weigh less than 13 $\frac{1}{2}$ ounces.

CHOICE.—Sections to be well filled; combs firmly attached; not projecting beyond the wood, and entirely capped, except the outside row next to the wood. Honey, comb, and cappings from white to amber, but not dark; wood to be well cleaned; no section in this grade to weigh less than 12 ounces.

NO. 2.—This grade is composed of sections that are entirely capped, except row next to wood, weighing from ten to twelve ounces or more; also of such sections as weigh 12 ounces or more, and have not more than 50 uncapped cells all together, which must be sealed. Combs and cappings from white to amber in color, but not dark; wood to be well cleaned.

EXTRACTED HONEY.—Must be thoroughly ripened, weigh 12 pounds per gallon. It must be well strained, and packed in new cans. It is classed as white, light amber, and amber.

STRAINED HONEY.—This is honey obtained from combs by all other means except the centrifugal extractors, and is classed as white, light amber, amber, and dark; it must be thoroughly ripened and well strained. It may be put up in cans that previously have contained honey.

BOSTON.—We quote fancy and No. 1 white comb honey at 15 to 16; fancy white extracted honey in 60-lb. cans, 11. Beeswax, 30.

Boston, March 7.

BLAKE-LKE CO.

IDAHO FALLS.—We quote finest white extracted honey in 60-lb. tins, at 6 to 6 $\frac{1}{2}$.

IDAHO HONEY-PRODUCERS' ASSOCIATION.

Idaho Falls, March 6. F. C. BOWMAN, Sec.

ALBANY.—We have to report a very dull honey market. Our stock of comb is very light, and extracted is overstocked. Prices are nominal at buyers' offers.

Albany, N. Y., March 6.

H. R. WRIGHT.

Honey reports continued on page 5.

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OUT!**

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Lay your plans for the new season now. Send for the 1914 Muth Catalog of Beekeepers' Supplies. It's just off the press. In it you will find full information about the remarkable MUTH SPECIAL Dovetailed Hives. Drop a postal card at once—sure!

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During this month we shall double our usual efforts in points of delivery and service. We carry nothing but the Root make, which insures the best quality of every thing. We sell at factory prices, thereby insuring a uniform rate to every one. The saving on transportation charges from Cincinnati to points south of us will mean quite an item to beekeepers in this territory. We are so located that we can make immediate shipment of any order the day it is received.

New 64-page Catalog

Our new 1914 catalog contains double the pages of former editions and requires extra postage. It is filled from cover to cover with complete lists of goods in every line to meet every requirement of beekeepers. If you haven't received a copy when you read this, be sure to ask for one. It will save you money.

New Features for 1914

Few radical changes have been made this season. It should be noted, however, that we will send out with regular hives, unless otherwise ordered, the metal telescopic or R cover with super cover underneath. The side rail for the bottom-board will be extra length so as to overcome the difficulty experienced by some last season. Improvements have been made in extractors. We shall carry a very heavy stock so that orders may be filled with our usual promptness. Write us your needs.

C. H. W. Weber & Co.

2146 Central Avenue

Cincinnati, Ohio

Gleanings in Bee Culture

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Editor Home Dept.

H. H. ROOT
Asst Editor

J. T. CALVERT
Business Mgr.

Department Editors:—Dr. C. C. Miller, J. E. Crane, Louis H. Scholl, G. M. Doolittle, Wesley Foster, J. L. Byer, P. C. Chadwick.

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HOW TO REMIT. Remittances should be made by draft on New York, express-order or money order, payable to the order of The A. I. Root Co., Medina, Ohio. Currency should be sent by registered letter.

AGENTS. Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

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Honey reports continued from page 2.

DENVER.—The market on both comb and extracted honey is not as active as it might be, state of weather considered. However, prices are remaining at about the same level as quoted last.

THE COLORADO HONEY-PRODUCERS' ASSOCIATION,
FRANK RAUCHFUSS, Manager.

Denver, Col., March 6.

LIVERPOOL.—We are still without any stock of Chilian beeswax, and the value is between \$88.88 and \$48.74 per cwt. For Chilian honey the market is very slow. Thirty-five barrels have been sold at retail at the following prices: Pile I., \$7.08; pile II., \$6.60.

Liverpool, Eng., Feb. 18.

TAYLOR & CO.

ZANESVILLE.—The demand for honey, while not brisk, is not far from normal for the season, there being some call for best quality of comb. We quote No. 1 to fancy white at 16½ to 18½ in a jobbing way; 18 to 20 wholesale. Best white extracted in 60-lb. cans, 9 to 10. These quotations are for white clover. Western honeys rule about a cent less. The price of beeswax remains arbitrary. At present producers would receive 32 to 33 cts. cash, 34 to 35 in exchange for supplies.

Zanesville, O., Mar. 6. EDMUND W. PEIRCE.

ST. LOUIS.—Our honey market remains in the same condition, rather dull and inactive, although there has been more calls for comb honey within the past few weeks. We are quoting in a jobbing way: Southern extracted, strained, light amber, in barrels, 6½ to 7; in 5-gallon cans, 7 to 7½; dark, ½ to 1 ct. per lb. less. Comb honey, fancy clover, 14 to 16; light amber, 12 to 14; amber, 10 to 12; dark and inferior, 8 to 10. By the case fancy clover brings \$3.00 to \$3.25; light amber, \$2.50 to \$3.00; amber, \$2.00 to \$2.25. Beeswax is scarce, and firm at 33½ for prime; impure and inferior, less.

St. Louis, Mar. 6. R. HARTMANN PRODUCE CO.

BUFFALO.—Our honey market continues to be very dull. At no time does it liven up and get active. Stock is heavy here and everybody is anxious to sell. Prices would be cut considerably if there were any chance to move any good-sized lots. Extracted honey plentiful, and slow sale. Good buckwheat would sell, but the most sent in is generally only half or less buckwheat. Fancy white comb honey, 16 to 17; No. 1 white comb honey, 15 to 16; No. 2 white comb honey, 13 to 14; No. 1 buckwheat, 13 to 14; No. 2 buckwheat, 12 to 13; white extracted, 8 to 9; dark extracted, 6 to 7; dark, about all buckwheat, 8 cts. Beeswax scarce, and wanted.

Buffalo, N. Y., Mar. 6. W. C. TOWNSEND.

The American Newspaper Annual and Directory
1898 pages, royal octavo, cloth, \$5.00 net, carriage extra, postage 60 cents. Published by N. W. Ayer & Son, Advertising Agents, Philadelphia.

The forty-sixth year of continuous publication brings us the 1914 edition of this comprehensive review of the newspaper and magazine field. The book is full of valuable information for the publishers of this country and for all those who deal with them. The facts and figures pertaining to each of the 24,527 publications listed are presented in a condensed and get-at-able form.

The Annual and Directory is now the only publication of its kind which is compiled from information gathered with such thoroughness each year from original sources. Mr. George P. Rowell was the first to compile such a work, and for many years he issued the American Newspaper Directory. Following his death, the Directory, with its records, copyrights, and property, was sold to N. W. Ayer & Son, who combined it with their Annual.

One specially valuable feature is the population of over eleven thousand towns, little and big, as given by the U. S. Census of 1910 and the Canadian Census of 1911.

As always, special attention has been given to the important matter of circulation figures..

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Gleanings in Bee Culture

DEVOTED TO HONEY, BEES, AND HOME INTERESTS.

A. L. BOYDEN, Advertising Manager.

Established 1878.

CIRCULATION 35,000.

Issued semi-monthly.

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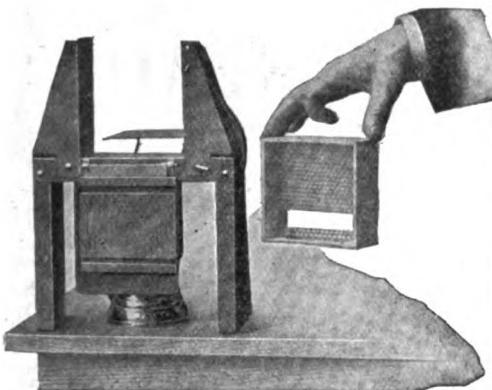
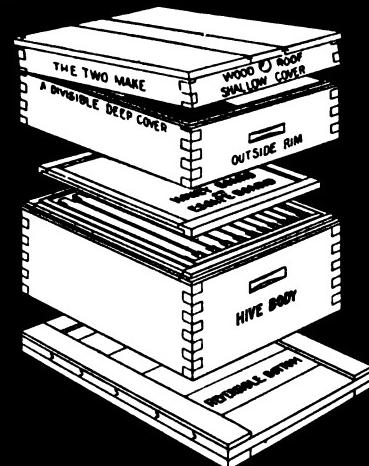
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Dead-air spaces or packing, as you prefer; $\frac{3}{8}$ material in the outer wall. Special circular showing 16 large illustrations will explain all.

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A. G. WOODMAN CO., GRAND RAPIDS, MICH.

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FROM
BEEs**

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BOOK FREE...

Johnnie-on-the-Spot Deliveries

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BLANKE'S BEE BOOK FREE—a catalog filled with helpful tips for either beginner or old timer. Write to-day before you need supplies.

Department 2

Blanke Mfg. & Supply Co.
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Satisfaction guaranteed, or your money refunded. Liberal discount for early orders. Special to new customers. Please drop me at once a card for our catalog.

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remember we carry a full stock and sell at the lowest catalog price. Two lines of railroad—Maine Central and Grand Trunk. Prompt service and no trucking bills.

THE A. I. ROOT CO., Mechanic Falls, Maine
J. B. MASON, Manager

BEE SUPPLIES Send your name for
new 1914 catalog out
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128 Grand Ave., Kansas City, Mo.

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Genoa, Italy	St. Petersburg, Russia	Sofia, Bulgaria
	Strassburg, i. E., Germany	

For catalog and inquiries write at once to

EMILE BONDONNEAU

Root's General Agent for Eastern Europe and Colonies

154 Avenue Emile Zola,

Paris 15 (France)

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Weed process machinery at Ogden eliminates excessive freight rates for Northwestern beekeepers on beeswax and foundation shipments. Special prices on request.

We sell "ROOT" bee-supplies and "AMERICAN" honey-cans at the factory prices. Payment also accepted in honey or beeswax.

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OGDEN, UTAH**

Branch at Idaho Falls, Idaho



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Stevenson's Weather Cottage foretells weather changes 8 to 24 hours in advance. This little weather cottage is carefully made with thermometer, modeled stag-head and bird on front of building and birdbase on roof.

This cottage is based on scientific principles, and is very accurate. In bad weather the man with raised umbrella, comes out, and in fair weather the lady appears. Interesting to the entire family.

Every cottage fully guaranteed. Size 7 1/2 in. high. Sent parcel post prepaid in U. S. or Canada for \$1. Your money back if dissatisfied.

FRANK H. STEVENSON CO.

Dept. G, Cooper Union New York City.

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Write to us for information.
Booklet and circulars free.

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ROCHESTER, N. Y. Department D.

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We Expect to Use
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Beeswax Worked into Foundation

If you want your wax worked into foundation we are prepared to do this for you at prices equal to those made by other standard manufacturers. Write for price if interested.

The A. I. Root Co., Medina, Ohio

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The A. I. Root Co., Syracuse, N. Y.
1631 West Genesee Street

"If goods are wanted quick, send to Pouder."

ESTABLISHED 1869

Bee Supplies

Bees in this zone are in winter quarters with a bounteous supply of natural winter stores, and I believe that no other feature is quite so important as regards safe wintering as an abundance of wholesome stores. The fall flow was so profuse that in some instances brood-rearing was curtailed early on account of crowded condition, and some strong colonies were weakened on this account. A few losses may result from this condition. The white clover in this zone is in good condition with the exception of a few counties which suffered from drouth. Conditions for ensuing year are very encouraging for both beekeeper and the supply-dealer. The last year will be remembered as a most excellent honey year, and with it came the best demand for honey that has ever been known. I am receiving more inquiries and orders for Root Bee Supplies than ever before during midwinter, and some discounts for early orders are still available. The policy of this house as to prompt shipments and a fair and satisfactory deal will be maintained as heretofore, and I hope to deal with you in a way that will justify your recommending my goods to your neighbor.

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Louisville, Ky.

Yours truly,
OTTO F. RECKTENWALD.

I should like to place in your hands my catalog with 1914 revised prices on bee supplies. Or send a list of your requirements, and let me see if I can not create a saving for you by quoting an estimate. This will place you under no obligations, and it will be one of my pleasures.

I can use more beeswax, and am now paying 31 cents cash or 33 cents in exchange for goods.

Walter S. Pouder

873 Mass. Ave., Indianapolis, Indiana

Indicate on a postal which of the catalogs named below you are interested in — They are Yours for the Asking.

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CATALOG B.—BEES AND QUEENS. Mr. M. H. Hunt has charge of our queen-rearing apiary. We specialize in choice Italian queens, three-banded and golden, and bees by the pound. Orders filled in rotation as received.

CATALOG C.—BERRY SUPPLIES. We carry a full stock of standard quart baskets and 16-quart crates. BEESWAX WANTED.

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DADANT FOUNDATION
Bees, Queens, Honey, Wax, Poultry Supplies, Seeds

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The Chas. E. Hooper Company
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J. W. TAYLOR & SON, Beeville, Bee Co., Texas

Are Your Bees Short of Stores?

We have candy in large paper pie-plates just right for late winter and early spring feeding. Write for prices. We carry a full line of supplies at all times.

H. H. JEPSON
182 Friend Street BOSTON, MASS.



Beekeepers' Supplies

Our 1914 64-page catalog ready to mail you free. . . Can make prompt shipment of regular-stock goods, as we have a good supply of The A. I. Root Co.'s goods on hand. The rush season will soon be on hand. Our freight facilities are good. Small packages we can rush through by parcel post. Express rates are much lower now also. Let us quote you. Let us hear from you. Beeswax taken in exchange for supplies or cash.

JOHN NEBEL & SON SUPPLY CO.
High Hill, Montgomery Co., Me.

"Griggs Saves You Freight" **TOLEDO** "Griggs Saves You Freight"

New goods arriving permits us to fill orders same day as received, and this, with direct lines to your door and low freight rates, makes TOLEDO the best place to order your goods from.

Our NEW ILLUSTRATED CATALOGS for 1914 are here and being mailed out. Send your name for one.

Send us list of goods wanted and receive our SPECIAL PRICES for quantity orders. BEESWAX is in great demand. Send it in now. We pay 32c cash, 34c in trade. Shoot it in.

S. J. GRIGGS & CO., • **26 NORTH ERIE STREET,** • **TOLEDO, OHIO**
"Griggs Is Always on the Job"

When You Buy Lewis Beeware

... You Get . .

LEWIS QUALITY.—Which means that all Lewis Hives are made out of clear white pine, and Lewis Sections made out of fine white basswood. Material in these goods is the best obtainable, selected by experts.

LEWIS WORKMANSHIP.—The Lewis Factory is equipped with the latest improved machinery, constantly watched over by experts. The Lewis head mechanic has 36 years of bee-supply experience; the superintendent of bee-hive department 30 years; the superintendent of sections 29 years. These and many other skilled men have a hand in all the Lewis goods you buy.

LEWIS PACKING.—All Lewis Beeware is carefully and accurately packed—a patent woven wood-and-wire package made only by the Lewis Company is employed largely in packing; this makes the package light, compact, and damage-proof.

LEWIS SERVICE.—Years ago all goods were shipped direct from the factory with attending high freight-rates and delays during the honey season. NOW Lewis Beeware can be obtained almost at your own door. Over 30 Distributing Houses carrying Lewis Beeware by the carload are dotted all over the United States and foreign countries. Write for the name of the one nearest you.

Our New 1914 Catalog Is Now Out. Send for One

G. B. LEWIS CO., Manufacturers of BEEWARE **Watertown, Wis.**

HAVE YOU SEEN IT?

... THE ...

NEW American Bee Journal IT PLEASES

In ordering the *Journal* again, I expected to see the same old thing; but I was agreeably surprised in the beauty of the pictures on the covers.

Just had a peep through. The whole "get-up" is good, and the photos particularly fine.

South Woodburn, N. S. W. MAJOR SHALLARD.

NEW Editor NEW Cover NEW Manager

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C. P. DADANT

D.R. C. C. MILLER

American Bee Journal, Hamilton, Illinois

Gleanings in Bee Culture

Published by The A. I. Root Co., Medina, Ohio.

H. H. ROOT, Assistant Editor. E. R. ROOT, Editor. A. L. BOYDEN, Advertising Manager.
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MARCH 15, 1914

NO. 6

Editorial

THE HEAVY SNOWS AND CLOVER.

THE heavy snows that have covered the ground all over the North during the last month will go a long way toward insuring a good crop of white, alsike, and sweet clover. The snows not only protect the clovers, but thoroughly wet down the soil for the early spring growth.

WEATHER IN SOUTHERN FLORIDA.

THE weather has been very beautiful in Bradenton—bright sunshine and a cool crisp air while the Northern papers report blizzards, zero weather, and snow. It has been cool at night, in the morning, and evening, and warm during the middle of the day. Ordinarily it is much warmer than this; but the exceptional cold weather in the North has had its influence in the South.

THE COLD FEBRUARY AND ITS POSSIBLE EFFECT ON WINTERING.

THE exceptionally cold February throughout the North, preceded by a comparatively mild December and January, may have a bad effect on outdoor-wintered bees, particularly if brood-rearing got much under way in the warmer part of the winter; but the cold coming so late probably will not do much damage if March is not too severe. The cellar bees of course will be all the better off for the cold. We are not sorry that the most of our bees are in Florida this winter, and the rest in our Medina cellars.

OUR COVER PICTURE.

THE cover picture for this issue shows the result of taking a colony of bees from a tree, as described by J. Bakula, page 221, of this issue.

If the work is done at the right time of the year and in the right way, a good strong colony of bees may often be obtained besides considerable honey. Ordinarily it does not pay to remove bees from trees in the fall; for unless conditions are unusually favorable the colony obtained can not be wintered with any degree of success. Very early in the fall might be all right if the bees have time afterward to adjust them-

selves to their new surroundings; but, of course, unless one has watched the bees in the tree for some time he runs the risk of having all his trouble for nothing. More than one large tree has been cut down in the fall, revealing only a late swarm, and a weak swarm at that, with practically no honey.

THE ROOT BEES AT APALACHICOLA.

THE last reports from our apiary on the Apalachicola River show that the weather has been cool and unfavorable during the last two weeks of February. Notwithstanding, our Mr. Marchant in charge says the bees have been breeding right along, and that he is now about ready to put on upper stories; but he has had to feed. The bloom from tyty is just opening up, and it is expected that the yard will be on the boom. Before swarming, the two-story colonies will be divided and another yard established.

E. R. R., now in Florida, after visiting the southeast coast, will go on up to Apalachicola, arriving there from the 12th to the 15th of March. The weather was so cool on coming into Florida on the 13th of February that he decided to visit our apiary just before his return to Ohio. The deferred visit will give him a better opportunity to study conditions and thus better determine whether the experiment of moving earloads of bees into this region for increase and honey is a success.

AN EXPLANATION.

QUITE by accident, we left out the last half of J. L. Byer's discussion in the last issue relating to the condition of the honey market in Ontario. As his first paragraph on the subject was not very complete, we hasten to place the rest of it before our readers at this time. The second paragraph in question is as follows:

As nearly all beekeepers in Ontario know, for a number of years the Ontario Beekeepers' Association has appointed a committee each year to gather statistics as to crops of honey, and then they advised each member as to what price they should expect for their crop. I suppose that, if the beekeepers had been in-

erviewed at any time previous to August, 1913, 90 per cent of them would have said, and truthfully, too, that this committee had put thousands of dollars in the beekeepers' pockets during the last five or six years. This year, as usual, the committee did a lot of work and sent out the usual report; but in this case, for reasons neither they nor anybody else thought of at the time, the price they recommended proved to be too high to move off the honey; and what a different story there is now on the part of some producers! Some actually had the nerve to write letters saying that the "ring," and other choice epithets of like nature, had issued the price list for the purpose of holding back others so that they (the committee) could sell their honey at the higher price before the general drop in prices would come into effect. The men on this committee have done a lot of work for no monetary consideration, for years; and to think that for once they in common with nearly all other beekeepers did not foresee the abnormal conditions ahead they should be accused of crooked work—candidly, Mr. Editor, you wouldn't print what I feel like saying, and I am not a profane man at that. Just to give the lie to such insinuations, I might say that the men on this committee did not sell in the early market, and at least one of them has the bulk of his crop on hand at the present time. I might also say that I was not a member of said committee; but I did attend their meetings on invitation, and acted in an advisory capacity along with the members. This being the case, I take full responsibility with the members in so far as being mistaken in our estimates and in not anticipating the dull times; and repudiate any crooked methods just as emphatically as though I had been an actual member of the committee in question. These are pretty plain remarks, but no plainer than the occasion calls for.

PROOF THAT DISEASE CAN NOT BE TRANSMITTED BY COMB FOUNDATION.

AT the Pennsylvania State convention at Harrisburg, Feb. 20, 21, the question came up as to whether the use of comb foundation is not responsible for the rapid spread of disease. This point has been raised a good many times in spite of what we consider very good proof to the contrary. Some years ago experiments were made with a view of transmitting foul brood by using foundation made from wax rendered from foul-broody combs; but these were not successful. However, in our opinion the strongest proof that foundation is not responsible for the transmission of disease is that it is being constantly used in healthy apiaries where there is never any disease. There is scarcely an apiary, large or small, in which comb foundation is not used every year. In case of large apiaries hundreds of pounds are used. Most makers of comb foundation divide the wax which they receive into two grades—the light and the dark. The light, being made principally from cappings, is used for making the thinner grades of foundation used in supers. The dark, generally rendered from old combs, is used for brood foundation. Now then, while it is practically impossible for any maker of foundation to tell whether the

wax he receives is made from foul-broody combs, it remains a fact, we believe, that considerable of the dark wax made into brood foundation was originally rendered from foul-broody combs. Perhaps most of such wax is made from old combs in box hives, crooked combs, etc.; but much of the wax is from diseased combs, the exact proportion, of course, no one being able to ascertain.

Here is the point: Assuming that a large proportion is made from wax rendered from diseased combs, if such foundation had the power to transmit the disease into the colonies in which it is placed, then we should expect foul brood to break out immediately all over the country to such an extent that the beekeeping industry would be almost wiped out in the course of a single year. As a matter of fact, there are hundreds and thousands of apiaries where foundation is used year after year—brood foundation, too—where disease has never been known. Now, if there is any stronger proof than this we should like to know of it.

It might be argued that strong colonies may be able to resist the disease. This might be true in case of European foul brood, but it is certainly not true in case of American foul brood.

HOW DOES DISEASE TRAVEL?

In our opinion there is nothing strange about the transmission of disease among bees. The most direct cause is the tendency of the bees to rob openly and violently during a period of honey dearth. Bees, when possessed of the robbing mania, will often go further for honey than they will for the nectar of the flowers during a honey-flow; and the easily overpowered colonies, weakened by disease, become the prey of these mad robbers that seize the stores only to find, later on, that, by so doing, they have "poisoned" their own brood, and accomplished their own downfall. In rare instances bees have been known to go seven miles for the nectar of the flowers. This shows that an apiary can hardly be expected to remain free from disease indefinitely if such disease exists even four or five miles away.

CITY BEEKEEPING IN FLORIDA.

INTENSIVE farming, market gardening, and the phenomenal growth of the towns and cities in Florida, are driving the keeping of bees more and more into the outlying districts where the hand of man has never touched the ground. On this virgin soil will be found the palmettos, gallberry, and pennyroyal, all of which yield honey. In other parts will be found the mangrove and the tupelo.

An exception to the rule of the city and the garden driving out the bees is the mammoth orange and grapefruit groves. It is in these that the hand of man has developed an important and increasing source of nectar supply. These groves and the uncultivated areas of palmetto furnish a blend of a beautiful light-colored fine-flavored honey. There is scarcely any thing better for table honey, north or south, than a palmetto honey with the flavor and aroma of the orange-blossom. The time will come when there will be a distinct demand for it, just as there is a demand for Florida oranges and grapefruit.

ORANGE HONEY.

This is coming more and more to be a staple article of commerce, not only in small but in ear lots. One who has not seen the mammoth groves of citrus fruits in California and Florida can not form any conception of their vast areas, covering square mile after square mile of territory. While the groves in Florida are smaller they are more numerous and more scattered than in California. From the latter State orange honey is being shipped east by the many carloads, as the large honey-buyers will testify. In Florida an orange honey is more apt to have a blend of some other source like palmetto; but it should not be understood that no *pure* orange is produced in Florida. The larger and more numerous the groves, the purer will be the honey, especially if the territory adjoining is under cultivation, as is the case in many sections of the State.

FLORIDA LAND, GOOD AND BAD.

As a rule the character of the soil varies so much that some areas will be productive while that immediately next to it is too poor to produce any thing but scrub palmetto. For instance, here will be a fine piece of hammock land that will grow any thing from celery to oranges. Right next to it will be an area of white sand with no hardpan beneath. On the former, one can get good returns from his investment. On the latter, he can get no returns, and he will be a sadder and a madder man—mad enough to kick the real-estate agent who sold him, clear into the middle of the Gulf of Mexico, where he can not “catch another sucker.” Some “strike it rich;” but many poor suckers are left stranded without a penny to get back.

Speaking about real-estate agents, there are plenty of them all through Florida. In some places they are literally thicker than bees. It is actually true that the country could afford to have “more bees” and less

of some of these sleek, oily-tongued chaps. A tourist seeing the numerous signs of real-estate agents in St. Petersburg very innocently asked a Florida cracker how many there were in the city. “As many as there are inhabitants,” was the instant response. While this is a slightly exaggerated statement, the craze to buy and sell land permeates a large part of the population. In many instances the land has doubled and tripled in value in the space of two or three years. Such sudden wealth has developed an unhealthy mania to “get rich quick” that is more or less pronounced—a condition that is certain to bring disaster sooner or later.

We see precisely the same thing in Oklahoma, in California, in New Mexico, Arizona, and Oregon. There are honest real-estate men in Florida as everywhere else. There are men there who are proud of the business they have done for their clients.

THE FOUNTAIN OF ETERNAL YOUTH.

There are numerous chances to buy good land at right prices, and there are thousands who have found home and health in the State. It is literally true that many with failing health, or who could not stand the Northern winters, have found a new lease of life in Florida. Not a small part of the population were *forced* to come south or die. One man in the last stages of Bright's disease came to Manatee as a last resort. He was directed to eat plentifully of grapefruit, drink from the Manatee spring, and live outdoors. He is to-day a well and rugged man, the manager and owner of a large truck-farm. He certainly looks as if he had found “the fountain of eternal youth” that the Spaniard of old sought and did not find. While we don’t believe much in the curative value of spring waters in Florida or anywhere else, we do believe that the Florida outdoor air has performed miracles in restoring health. To see and talk with those that have been cured is to believe.

WILL THE BOOM IN FLORIDA LAST?

Many believe that there is bound to be a slump in the present exaggerated value of lands in the State; that such boom times can’t last; that there will come a time when the “get-rich-quick” mania will exhaust itself; that in the mean time thousands who have “invested” will lose their hard earnings. While this is bound to be so in some places, and to some extent in all places in the State, it is to be hoped that it will not be true generally. As long as there are thousands and thousands of sick and over-worked people in the North needing a rest and a warm climate during midwinter, there

will be a demand for homes and land. The average person, if he does not take time to investigate thoroughly before investing in land—especially land remote from a good town or water front, will lose out; for most of the land in the State is good for nothing, either to-day or at any time in the future. The three elements that determine values on land in Florida are water front, proximity to a good town, and productiveness. The man or agent who can guess where a big town or resort will locate will strike it rich if he can live long enough.

A. I. ROOT'S FLORIDA VISITORS; AN OPEN LETTER FROM E. R. ROOT TO THE READERS OF GLEANINGS.

FROM one to half a dozen people almost daily visit A. I. Root at his Florida home in Bradenton. There is nothing great or remarkable at his place; but our readers evidently want to see the man whose writings on home, garden, and religious topics they have read so long. Said a visitor the other day, "There are just two men in this world I have been wanting to see. One is Elbert Hubbard and the other is A. I. Root. Excuse me," he corrected, "I mean A. I. Root and Elbert Hubbard. I shall go back to my friends now and say I have seen Mr. Root;" and he evidently was pleased; but there are some, doubtless, who go away with a different impression when they see a little old man in old clothes with cap drawn down over his ears, who gives them only a moment of his time, and who possibly rather abruptly excuses himself, and they see him no more.

In all fairness to Mr. Root, it should be stated that he was never of robust health. Once, as a child, he was given up to die; but his mother, the neighbors said, would not let him die. From childhood up he suffered from frequent lung trouble, and during the intervening years he has had to be very careful of his health. The building up of two large businesses during his earlier manhood soon put him where it was thought he would not live long. The doctors prescribed midday naps and letting go some of his business cares. He did not readily accept the latter part of this treatment until a siege of malarial fever, which nearly took him away, compelled him to relax. His boys came out of college, and from then on he gradually let go of the active care of the business. This, fortunately, enabled him to go on with his experimenting and writing until now many who have followed him these years, and read those lay sermons, are anxious to see the author.

Nearly seventy-five now, his years have

begun to pull upon him, so that he is obliged to take not only his noonday nap but one or two more during the afternoon and evening. If a visitor perchance happened to come upon him just before one of these naps he may be surprised and pained at the abruptness of the interview. To apologize or explain might make matters worse.

The fact is, that there are times when A. I. Root is physically unable to give his callers much attention. At other times, fresh from a nap, his visitor may be surprised at the exuberance of his enthusiasm in showing his garden (particularly his *dasheens*), his chickens, his ducks, and his tropical plants around the house. Such a treatment seems wholly in accord with the style of his writings. The abrupt interviews perhaps seems to be the very antithesis of his Home papers.

No one regrets more than Mr. Root that he is unable to give to all the same considerate attention that he gives to some. The former may be justified in the belief that the *real* A. I. Root is not the same as the A. I. Root on paper.

Right here it is proper to remark that when A. I. writes matter for publication he does it in the *fresh* hours of the morning, or after a nap in the afternoon, when he is at his best. In this connection, also, it should be said that Mr. Root has no office force at his Florida home—not even a stenographer or a clerk. His replies to the numerous questions that are sent to him at Bradenton, if at all, must necessarily be brief.

I wish to suggest that all questions be sent to the Medina office. I have studied Florida, and am fairly familiar with what my father is doing, and his views on various subjects. As I am in Medina eleven months in the year I can, with our office force, the dictaphone, and stenographer, answer most of the inquiries that come in. I make this suggestion that father may prolong his life, and thus give thousands the benefits of his Home talks and lay sermons. The answering of many letters is becoming a serious task to a man of his age.

A. I. says visitors are always welcome at his Florida home; but if any one of you should get a short visit or interview you will know that it is not because it is *you*, but because you *happen* to come at his nap times when it is absolutely necessary that he take a rest, and without which his Home talks would soon be no more.

E. R. Root.
Bradenton, Fla., Feb. 27.
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Stray Straws

By DR. C. C. MILLER, Marengo, Ill.

HENRY REDDERT disapproves of bees on housetops because the bees try to get in windows in time of preserving fruit, p. 193. Why should bees on housetops trouble more than bees on the ground?

"**BEES** do not put different grades of honey in the same cell," p. 74. No, nor different colors of pollen in the same cell, nor visit more than one kind of flowers on the same trip. That's the rule, but there are exceptions, friend Hewes, in all three cases.

ALEXANDRE ASTOR, *Apiculteur*, 6, says science shows that honey contains mineral salts—salts of iron, potash, lime, phosphates, etc., and that these are *indispensable* to the formation and maintenance of living organisms. Since sugar is almost entirely deprived of these salts, bees fed almost solely on sugar must necessarily deteriorate.

"**THE OUTLAW**," p. 178, trusts "that all those who are true apiarists at heart will understand and forgive his acts as an outlaw." That might pass for a joke; but taking up a column or so to prove that he is really a breaker of valid law can hardly come under that head. Let us hope that "to be continued" may give the key to the puzzle.

A VARIATION of the McEvoy treatment by E. G. Brown is given in *Review*, p. 12. Prepare a hive with frames of foundation or starters, only let there be one frame of drawn comb. Brush the diseased bees into it, and when they have been in the hive long enough to empty their sacs, draw out the comb of honey, carefully brush off the bees in front of the hive so as to scatter no honey, destroy the comb, and replace it with a frame of foundation.

ENDORsing the editorial on European foul brood, p. 2, I may say that, if it were left to me to decide whether it should continue in this neighborhood or not, I should hardly know which way to vote. [Do you mean that European foul brood has been a blessing to you in that it has eliminated the black strain of bees, or the careless haphazard beekeeper, or both? It is certainly doing both, and therefore to some beekeepers, at least, it is not an unmitigated evil.—ED.]

LONGEVITY I am inclined to believe an important factor, and I am quite willing to be convinced that greater longevity brings greater storing. But I'd like to have some proof that the extension of life is in the gathering period, and not in the previous

portion of the bee's existence. We are told that in the busy season a worker lives 6 weeks—16 days as a nurse-bee and 26 days as a gatherer; that is, 62 per cent of its span is spent at field-work. If, now, we can get a bee to live 12 weeks, what gain will there be unless more than 62 per cent of its life is spent as a fielder?

MCHENRY COUNTY, ILL., in which I live, has a "Soil Improvement Association," partly supported by the U. S. Department of Agriculture, with a resident Soil Expert belonging to the Department. There have been planted 350 acres of alfalfa, and for the coming season 115 bushels of alfalfa seed have been bought. But the special thing I wanted to tell you is that 20 bushels of sweet-clover seed have been bought, or more than one-sixth as much as alfalfa. So far as I know, that is without any reference to bees, but solely for hay and pasture. It shows that sweet clover is forging to the front pretty rapidly, and that Uncle Sam is helping to get it there.

"**INCREASING** the super room did no good." That's quoted, p. 83, from Wilmon Newell, as referring to prevention of swarming. I'm a bit skeptical about his meaning that without qualification. I think he believes that, if bees are crowded for super room, it favors swarming; and that's not such a great way from saying that decreasing super room favors swarming; which, again, is not so far from saying that increasing room favors prevention. Personally I am of opinion that there are cases in which, with timely enlargement of super room, there is no swarming, whereas without that enlargement the bees would have swarmed. My practice accords with that belief. Whereas I formerly added an empty super beneath as soon as the lower super was partly filled, I now add an empty super on top as well. Especially do I believe in abundant super room *before* the bees begin to have swarm-thought. ["Increasing the super room did no good" was not a direct quotation from Wilmon Newell, as you say, or at least we do not find any quotation-marks in the copy before us. As the paragraph is brief we might as well quote the whole of it. This is what Mr. Newell said on the point:

Many experiments were tried in which a large amount of super-room was furnished the colonies, both prior to the development of the swarming fever and afterward. It is unnecessary to take space for describing these experiments, as in no case did the addition of abundant super-room have any perceptible effect upon the swarming tendency.

SIFTINGS

J. E. CRANE, Middlebury, Vt.

I will take off my hat any day to Anton Larson and his six honey-eaters, page 22, Jan. 1.

"Cheap, twangy stuff" is what the editor calls honey adulterated with glucose, and he is right, p. 43, Jan. 15.

Can any one tell us whether sweet clover will kill out quack-grass when sown on a turned sod of this kind of grass?

Mr. Glenwood Beard is right in his statement, p. 856, Dec. 1, that swarms from colonies infected with American foul brood do carry diseased honey with them.

My experience in making money by poultry corresponds quite closely with the ideas given by O. L. Hershiser, page 30, and I have great respect for the business ability of those who make a fair success of poultry on a somewhat extensive scale.

Dr. Miller says, page 5, Jan. 1, that most of the work of securing that bumper crop of honey in 1913, of 266 sections per hive, was done by a woman. "Did you ever?" Who shall say from this time on that bee-keeping is not a woman's business?

Mr. Byer, in speaking of Dr. Miller's last year's crop of honey, page 6, says, "Such a crop means a combination of a wonderfully good honey-flow, wonderfully good bees, and last, but not least, wonderfully good management." That is what I call a wonderfully good combination.

C. W. Dayton's experience in shipping honey by parcel post, as given on page 859, Dec. 1, would seem to show that it may be sent safely in this way. We have had no difficulty. We use corrugated paper, however, instead of wood for cover. Let us remember that the word "parcel" means "something done up," and for this purpose it should be done up securely.

It makes one's heart flutter a little to read on page 860, Dec. 1, of Mr. Gilstrap's young son getting a hundred stings at one time. It is not all of us who have whisky or brandy at hand, so I want to say that carbonate of ammonia is even better than any form of alcohol. A lump the size of a bean should be dissolved in half a glass of water, and a teaspoonful given every half

hour or oftener. Ammonia is a quicker stimulant than alcoholic liquors, and, besides, it is an antidote to bee-poison.

Dr. Miller is right, p. 45, Jan. 15, in thinking bees will move eggs for the rearing of a queen. I had a case of this some thirty-five years ago. The bees built a queen-cell on a comb that I gave to a queenless colony in spring. The comb having been wintered out of a hive, and as there was no queen in the hive, they must of necessity have moved an egg to rear the queen where they did.

I received some time ago a copy of a booklet edited by A. I. Root and J. T. Calvert. It would be cheap at a dollar considering the facts it contains. Its title, "The Truth about Sweet Clover," does not appear to be in the least misleading. What is more it doesn't cost a dollar. Just write to the A. I. Root Co., and they will send you a copy for the asking.

BROOD REARING IN THE CELLAR.

That which interested me, perhaps, more than any thing else in the Jan. 1st number was the brood-rearing in one of the bee-cellars at Medina, page 33. It seems to me that we have here the germ of something of great value. If weak colonies in the fall can be so wintered as to come out strong in the spring it is a mighty improvement over having strong colonies in the fall come out weak in the spring. This account of wintering bees and winter brood-rearing reminds me of what the man said of whom I bought my first hive of bees nearly fifty years ago. He said the best way to winter bees is to leave them out of doors until late, and then take them to a cellar, when they at once commence breeding. That is just what they have done at Medina, and with just the result that he stated. They have had a season of rest, and the moving has caused them to consume or fill themselves with honey; and what could be more natural than that they should feed their queen and she begin laying freely, and that in the higher temperature the eggs should be hatched and the brood reared? But the supply of pollen, and how far this brood-rearing can be carried without the bees flying or producing disease, is something we long to know. Please, Mr. Editor, tell us more about it.

Beekeeping in California

P. O. CHADWICK, Redlands, Cal.

Mr. Crane, p. 794, Nov. 15, following your reasoning, bees in a twelve-frame colony might build up faster than those in a ten by having a greater amount of stores than those in the ten-frame hive. There is no question that ample stores have much to do with rapid increase in the spring, far more than is generally supposed; but I had in mind equal conditions in this line when I made my original comment in the July 1st issue.

Some of our California beekeepers seem to think it is a waste of time for them to read of wintering bees. In reality it is one of the problems we have much to learn of—not of the extreme cold, but to know really how to handle the problems that arise from season to season that we should be able to meet intelligently and promptly. In the East I was able to tell very closely when the winter was over; but here the bees may be ahead of the season, or the season ahead of the bees. The latter is the most important we have to watch; for if the season is much in advance of the bees it means a loss of valuable time.

It began to rain, Feb. 17, after three weeks of practically cloudless skies. More fell on the 18th; still more on the 19th, 20th, and 21st, by which time California began to resemble a "drowned rat," and flood conditions became grave indeed. Redlands received no mail from Los Angeles for three days; but the Los Angeles daily papers were able to reach us by auto truck. Such a storm is rarely experienced in this section, as the rainfall was little less than phenomenal, ranging from four to as high as 15 inches in various localities. The ground is soaked to a great depth, vegetation is at its best, and anybody coming in on our overland trains would be very likely to form a false conception of the beauty of our foothills by the way they look now. I have never seen a finer growth on the button sage at this time of the year than at present; but for all of our good prospects we may not be able to harvest the crop that many anticipate. The spring is unusually early, but may be late yet if the winter should be like that of 1905. Both March and April may yet be cold and backward, as was the case that year after a warm January and February. In case warm and open weather should continue, the season will arrive before the bees are ready for the harvest.

However, the condition of the soil and the great amount of water stored therein will doubtless prolong the blooming season of our honey-plants to such an extent that there is almost sure to be a good harvest.

* * *

AN OPPORTUNITY AND A PREDICAMENT.

There are some opportunities ahead of us that I wish to point out at this time, even though we are likely to pass them in our eagerness to take toll as heavy as possible from a good season. There is an opportunity ahead to eradicate almost entirely black brood (European foul brood) by taking advantage of a heavy honey-flow to retard the progress of the disease while we are getting our colonies requeened with good vigorous Italian stock. If every beekeeper in the southern part of the State would make it a point to Italianize, our trouble by another season would be so limited that there would be no grave fears in any quarter. The chances are, however, that many will not do so, and the disease will linger among the careless for years to come. Those who do requeen with good resistant stock will be paid for their trouble, and at the same time will lessen the chances of the disease becoming malignant.

A predicament that we shall see to our sorrow, if the prospective good season does arrive, is that of a big supply of honey on hand among a disorganized force of beekeepers while the buyers are organized to make the best of the disorganization. That is business on their part, for they can see ahead. It is foolishness on our part, and we shall realize it when our fine sage honey drops to a figure much below what we even let ourselves dream of now. We can not blame the buyer. He is "on to his job." The entire trouble is that we have failed to form a mutual agreement by which we may hold the market of sage honey in our hands. The buyers could then go to our representative for his honey at a figure fair to both the buyer and the producer. But we are willing to let the other fellow make the market, and buy at a price fixed by himself; so if we get "stung" we shall know who is to blame for the pain. We meet together once a year, and resolve to resolve to resolve. We appoint committees to resolve further, and at the end of another year we are ready to begin anew the same old process. I wonder if we shall ever wake up. Perhaps about half of us will at a time, while the other half is sleeping.

Beekeeping in the Southwest

LOUIS SCHOLL, New Braunfels, Texas.

TEXAS HONEY PRICES, AGAIN.

Several times we have discussed honey prices and market conditions of the past season in Texas, and several letters of comment have come in. Below is one.

I notice that you advocate that beekeepers of Texas get together and agree on a more uniform selling price of their honey. I believe this ought to be done. I can not see why we can not have quotations of prices of honey in Texas published in GLEANINGS twice a month as other sections of the country are represented in the Honey Column. It would help some. I am often at a loss to know what price to ask for my honey when the season opens up. I do not want to undersell any one, so I have to guess at about what it may be selling at.

Tehuacana, Texas.

T. M. JONES.

The above communication has brought on another thought—that of quoting the price of honey in the Honey Column of this journal so that the Texas beekeepers, and others too, who may be interested, can keep posted to a certain degree at least. I have recently met a number of beekeepers who told me that they found, after they had disposed of most of their honey at a certain price, that they could have obtained a little more for it if they had had some means of learning the reigning market price at that time.

Can you not arrange in some manner, Mr. Editor, to give our readers such quotations as mentioned above? I feel that this service would be highly appreciated by a large number of them. [We will see what can be done.—ED.]

* * *

THE EVIL EFFECTS OF SELLING OFF-GRADE HONEY.

There are two evils that are responsible to a marked degree for causing low honey prices. One of these is the beekeeper who does not read bee-journals nor keep posted on the market price of honey; and who, when he does have some honey to sell, simply dumps it on the market at any ridiculously low price that he may be able to obtain. The other evil is the beekeeper who puts inferior honey on the market at any low price that he may be able to get for it. Either one of these beekeepers will have a tendency to affect the entire honey market and bring down the price.

Under the first class we may place the large number of small beekeepers who own only a few colonies, and these, perhaps, in box hives. Those of this class do not care to keep up with the times; and since the amount of honey they have to sell is usually small they are not so particular about the difference in the price they obtain and that at which they ought really to sell.

However, there are a great many beekeepers who have a much larger number of colonies who can be put in this same class. And the amount produced by all of them amounts to enough to cut quite a figure.

With the beekeepers who put inferior honey on the markets we can class some of our better beekeepers as well as the smaller fellows just mentioned. It has surprised me many times to find some of our well-posted beekeepers putting up honey for the market that we were sure they knew ought not to be offered for sale. It often happens, however, that many of these beekeepers must dispose of every bit of honey that they can get together in order to make ends meet. This is especially true during less favorable seasons, and it is during those years that inferior honey is more plentiful. This is not always the case, however, for we have found honey in many of the stores we had occasion to visit on our trips during the most favorable seasons that ought not to have been packed at all. Much of this was packed with fancy honey, and this made the contrast between the good and the bad so much greater. While the mixed lots of honey were a drug on the merchant's hands, good honey was in strong demand. But the chance of selling these merchants more good honey was cut off because they were stocked up and would not buy until this "stuff" was disposed of.

It makes a great difference if the merchants can get good honey and keep it moving off their hands. It gives room for other purchases, and in this manner large quantities of honey can be moved off on to the consuming masses. How different, though, if the merchants are loaded up with inferior stuff that they can not move! During the time it remains on the hands of the merchants there is little chance of moving more honey, even though it be of better quality. The result is that the market becomes more or less demoralized. The merchants hesitate about buying more honey, even after they have succeeded in disposing of the "stuff."

It is to be hoped that more attention will be paid to these most important matters. The difference of even only a fraction of a cent per pound more for our honey is to be considered seriously in this time of greater cost of production and higher cost of living, and with the honey price not keeping the same pace of advancement in price with other commodities. The margin between profit and loss is not great enough to permit of much carelessness.

Conversations with Doolittle

At Borodino, New York

THE HARD OR SUGAR MAPLE.

"Will you tell which is the first thing in the spring to give the bees a good send-off on their way to a successful gathering of surplus from the white clover? We have plenty of the hard or sugar maple about here. Is there any thing better than this?"

Any beekeeper who has a spark of love for his pets is all awake for the season when the first song of the bluebird breaks forth on the air, and the musical croak or peeping of the frog in the pond is heard once more. And especially is that apiarist interested when the workers of the hive begin to bring in the first water, and when scanty loads of pollen can be seen in the pollen-baskets after a search far and near for this great incentive to brood-rearing. He knows then that active brood-rearing in such a colony has commenced. With us such activity commences with the pollen furnished by the skunk cabbage, this being found from three to ten days earlier than from any other source. Then comes pollen from the various pussy willows, and a day or two later that from the soft maple and the swamp elm. These last furnish a limited supply of nectar, or enough at least to enable the bees to pack the pollen in the pollen-baskets without carrying honey from the hive, as is done with most of the very early pollen-bearing flowers. I know of nothing more cheering to the heart of the wideawake apiarist than the bees scrambling into the hive with their loads of pinkish-hued and yellowish-green pollen from these two sources, for they forecast a successful harvest from the white clover and basswood. These flowers lay the foundation for the great army of workers needed for the gathering of the harvest in June and July.

Yet, notwithstanding this, the harvest would be meager were not these sources followed a week or two later by something which enables the bees to complete the structure that is necessary over this foundation. And this something is the bloom of the hard or sugar maple. Occasionally there is a year when a heavy freeze, or cold rainy weather cuts off the maple bloom, in which case the army of bees which are generally reared in time for the harvest do not materialize unless the apiarist is awake to his job and provides plenty of honey for each colony so that there is no disposition to retrench in brood-rearing during the time of scarcity which, under such circumstances, occurs between the soft maple and elm and the fruit bloom, the latter a week to ten

days after the hard maple. Especially necessary is this maple bloom when the fruit bloom is cut off by bad weather, which is far more liable to be the case than with the maple, as there is only an occasional year when the maples fail, while a good yield from fruit bloom is the exception rather than the rule. Then the hard maple possesses a quality inherited by no other tree with which I am acquainted. It not only yields pollen the most bountifully of all trees, but gives a fairly good yield of nectar at the same time; and, coming as it does in ample time to incite the bees and queen to the greatest activity in brood-rearing, where this tree abounds the apiarist is assured of a good yield from clover and basswood unless the weather is unpropitious, or unless the bloom should fail from these two last greatest in value of all the nectar-producers here in the white-clover and basswood belts in the northern United States and southern Canada.

One reason why hard-maple bloom rarely fails of giving the bees a good chance to work on the bloom is that the bloom is held in the bud for a long time in unpropitious weather; and just as soon as the sun comes out bright and clear, and the air begins to become balmy, out will come the flower-buds, hanging from long golden threads, and often in less than 36 hours a tree which looked as though it would not bloom in weeks comes out in full bloom, looking as though each twig were a festoon of silver and gold, as bright in color as a bed of dandelions when in full bloom, and giving whole tree-tops a glorious appearance. And one of the strange things, and a fact rarely noticed except by the close observer, is that at the first blossoming stage there is scarcely a leaf put out till after the buds have mostly opened, inviting the bees to a sumptuous feast which they are on hand to enjoy from early in the morning till late at night.

In my first years of beekeeping I thought that the combs got pollen-bound from the enormous quantities of pollen stored, where good weather lasted till the wind-up of this bloom; but later I found that, before the fruit bloom put in an appearance two weeks later, this pollen was nearly if not quite all turned into brood, with which nearly every available cell in the comb was teeming. Then, besides this honey and pollen coming to the bees, there is another marvelous sweetness coming from the evaporated sap which flows in early spring from any wound that may come to the tree.

General Correspondence

SWARM PREVENTION AND SWARM CONTROL

A Definition of Principles

BY J. E. HAND

It is well known that the conditions that favor section-honey production are likewise productive of swarming; hence it behoves the producer of the most fancy product of the apiary to adopt methods and principles of swarm management. There are two separate and distinct principles involved in the operation, known as "swarm prevention" and "swarm control."

SWARM PREVENTION.

Swarm prevention, as its name implies, is supposed to prohibit swarming entirely. While many have laid claim to successful swarm prevention by manipulation, such claims have not been well sustained; because, in order to accomplish it, the colony is usually thrown so far from a normal condition as to render it practically unproductive during an ordinary clover harvest. The dequeening method is generally conceded to be the most effective in this class. It consists of rendering the colony queenless for ten days, and removing queen-cells at the beginning and end of that period. Since queenlessness is an abnormal condition that has a deleterious effect upon the working qualities of bees, little can be said in favor of swarm prevention by dequeening. There are other principles of prevention by manipulation, but they are all more or less objectionable.

SWARM CONTROL.

Swarm control is different from swarm prevention, in that it does not prohibit swarming, but governs, directs, and conducts it along lines that harmonize with the swarming habit of bees. Chiefest among methods of swarm control is the shake-swarm method. It consists of substituting the artificial for the natural swarm after queen-cells have been built. It is natural, because it satisfies the swarming impulse. It is profitable, because it places the swarm in precisely the same condition as though they had voluntarily migrated to a new domicil—a condition that ensures the best work that bees are capable of performing. It is economical, because it admits of swarm control by mechanical means, which eliminates excessive labor, such as moving heavy hives, peddling combs of brood about the apiary, etc. There are other principles of

swarm control, but they are all more or less objectionable because they ignore psychic conditions of bees and its influence upon their working qualities. We may prevent a horse from running away; but if he refuses to work he is of little account, for we have lost control of him just as much as though he had run away; and the same condition will apply to bees.

SWARM CONTROL BY MECHANICAL MEANS.

While the basic principle of swarm control by mechanical means has been exploited at frequent intervals during the past quarter-century, the correct method of applying the principle as herein described is a recent invention for which a patent was granted in 1911. The equipment consists of a bottom-board wide enough to accommodate two hives side by side, said bottom-board being equipped with a simple device that is out of sight under the hives, and is capable of shifting the field force of a colony into an empty hive, or of two colonies into one hive, by turning of two switches, the ends of which protrude from an entrance on each side of said bottom-board.

Here is the method: Begin operations for swarm control by placing a hive with full sheets of foundation and a queen-excluder on the vacant side of a switch-board beside a strong colony that has queen-cells started. For convenience we will designate the colony as No. 1 and the hive as No. 2. Move levers so as to close both entrances to hive 1, which will direct all comers into hive 2 without changing the appearance or position of the entrances, which are wide open when viewed from the outside; hence bees will enter the new hive through their accustomed entrance without any hesitation. Transfer the supers to 2, and shake most of the bees off the combs of 1, letting them run into 2, making sure to get the queen also. Insert a flat conical bee-escape in the entrances back of the levers, so that no bees can leave hive 1 except through the escapes, which discharges them close to the entrances to 2, which they will enter on returning from their first flight. No. 2 will thus receive constant re-enforcements of young bees during the next three weeks; and if the harvest is of long duration it may prepare for swarming in spite of the

treatment. In this case the operation is reversed, and the bees are shifted back into 1, in which conditions that favor swarming do not exist. The second shift will not be necessary in an ordinary harvest from clover and basswood. This method is positive in operation and results, and is superior to any other method of swarm control that I have tried; furthermore, it will cure an or-

inary case of foul brood, while the shake-swarm method as usually practiced will have a tendency to scatter it broadcast. There are many ways in which this simple equipment may be utilized for the economical control of bees by mechanical means, but this article is limited to swarm management.

Birmingham, O.

A NEW JERSEY HONEY SPECIALIST

BY E. G. CARR



C. H. Root, of Red Bank, N. J., the only producer in the State who devotes his entire time to the business.

business that his health had become impaired, making it necessary for him to abandon his regular work.

Having always been very active he quickly realized that idleness would not be desirable, and that some light work would be beneficial. He began to inquire into the possibilities of beekeeping as a business. He early realized the importance of avoiding costly fads and mistakes, and adopted the plan of appealing to a beekeeper in whom he had utmost confidence when any problem or new plan presented itself.

Living in a city of 8000 population, Mr. Root at once adopted the small outyard system, and has since successfully kept to this plan. He now operates about 300 colonies in eight yards, situated in all directions from Red Bank from $1\frac{1}{2}$ to 8 miles distant. These are all on the premises of fruit, berry, and vegetable growers who appreciate the good services of the bees and are glad to have them there, a number of them having requested that the bees be so placed. Five of the yards are worked for extracted and three for comb honey. The

comb-honey yards are successfully run on the Doolittle plan. Mr. Root finds that shaking "*a la Doolittle*," however, will not always prevent swarming, particularly if the colony has contracted the swarming fever previous to the shaking.

Eight-frame hives with Hoffman frames are used in two yards, and ten-frame hives in the others, the ten-frame size being preferred. The $4\frac{1}{4}$ square plain sections with fences are used for the comb-honey work. Only the necessary tools are kept at each yard, and the honey is hauled home for extracting, and for grading and packing.

Previous to 1913 a bicycle was used to visit the yards, and a horse and wagon to do the hauling; but this season a Ford run-about is being used with perfect satisfaction, both for visiting yards and for the hauling, Mr. Root having built what he calls the working body, which he uses, just back of the seat in place of the regular equipment. This is quickly detachable.

The entire work is done by Mr. Root alone—not only the producing but also the packing of the comb honey. The entire crop of extracted honey, with the exception of about 50 one-gallon cans, is put up in $\frac{1}{2}$, 1, and 2 pound jars. The crop for 1912 was nearly ten tons.

It would be difficult to find a more particular honey-producer. All hives are put together with painted joints, and the same degree of thoroughness is characteristic of all his work. An equipped wood-working shop, and his skill and connection with the lumber trade, enable Mr. Root to make his bottom-boards, hive-stands, covers, and winter cases, and no factory-made goods could excel them. He does not think it would pay him to make hive-bodies or frames.

A summer visit to Mr. Root's yards will show an idea which appears to be original with him. The summer hive-covers are of the telescoping type, three inches deep and of half-inch material; but instead of being



One of C. H. Root's apiaries near Red Bank, N. J.

roofed with metal they are covered with canvas brought down and tacked under the bottom edge, and given three coats of paint. This is a cover that will not blow off, leak, or become hot when in the full sunlight, and does not require frequent painting.

It is a generally accepted statement that beekeepers are particularly weak on the selling end; but Mr. Root seems to have been very successful in this respect in selling through a broker who gets him 16 cts. for comb honey, f. o. b. his depot, and such a price for the extracted honey that it nets

him 12 cts. after deducting all expenses for glass, labels, packing, and labor figured at a good price per hour. While Mr. Root is the only one at present in New Jersey who devotes all his time to producing and marketing honey this is no indication that this may not be done in a number of other places; but it rather goes to show the possibilities of specialization along this line in this State.

Mr. Root is ex-mayor of Red Bank, and the present president of the New Jersey Beekeepers' Association.

New Egypt, N. J.

REPORT OF NEW JERSEY CONVENTION

BY C. D. CHENEY

The 1914 meeting of the New Jersey Beekeepers' Association, held in the Entomology building at the State Experiment Station at New Brunswick, Jan. 21 and 22, may be set down as the most satisfactory meeting yet held by the association.

Several gentlemen on the program failed to appear or send a paper; but these lapses were overlooked amid the abundance of discussion in which Mr. A. C. Miller, of Providence, R. I., Mr. George M. Steele, of Philadelphia, and others took part. The matter of winter feeding was discussed in its various phases, Mr. Steele saying that his experience was most satisfactory with block sugar dumped directly on the frames and

covered with table oilcloth (cloth side up), in a dry climate, or with burlap in damp situations, the idea being to secure about the right moisture to enable the bees to take the sugar without waste.

Mr. Miller described very carefully and minutely how to make Fuller candy, and pinned his faith upon it, claiming earlier brood-rearing, and no danger of getting any of it stored in the surplus. Incidentally he mentioned that his friend Latham had demonstrated that five pounds of this candy would carry a colony through without other stores. This statement, being so much at variance with the accepted standard, caused the assembled beekeepers to gasp. Mr.

Hornor had just before stated that he had fed two barrels of block sugar, giving each colony 15 to 20 pounds, and had two barrels yet to feed!

The evening session was even more interesting. Mr. Miller gave a talk on "The Dollar and Cent Side of Beekeeping," and it was very evident that his training as a banker had certainly qualified him to figure things down to one-half of one per cent, and then multiply. As usual in bee "talks," many most interesting and instructive topics were brought in and discussed, and many side-lights were thrown upon matters only indirectly related to dollars and cents. Mr. Miller stated, in reply to a question, that he had at one time a considerable number of colonies of yellow Italians, but that he "was glad to be rid of them—they are the worst of sneak thieves."

This remark caused a roar of laughter, as Mr. Miller had unwittingly trodden upon Mr. Steele's toes. Mr. Steele retorted by saying his yellow bees are not that kind. They are very gentle, and he never has any robbing. Mr. Miller said, "Put some highly colored feed in your dark-Italian hives, and

in a day or so you will find it all in the yellow hives!"

Good-humored tilts like this made things interesting throughout the meeting, and Mr. Steele was subjected to considerable "joshing," which he met with characteristic humor and energy.

It is not possible, in a brief account like this, to do justice to the paper by Dr. Phillips, on "Two Essentials in Honey Production." Suffice to say he threw new light upon well-known methods by explaining the bearing and relation of various scientific principles. The ground was thoroughly covered and fully discussed.

Mr. C. H. Root, of Red Bank, was re-elected President, and Mr. E. G. Carr, of New Egypt, was also re-elected Secretary-Treasurer.

There was a rather small display of honey and wax, for which prizes were awarded. The "newest useful invention" presented was adjudged to be the tube bee-escape for transferring and treating foul brood without shaking. This also received a prize. Many new members were enrolled.

Hoboken, N. J.

BEES MOVED EGGS FROM ANOTHER HIVE AND REARED A GOOD QUEEN

BY W. L. MILLER

I notice that Dr. Miller, in his *Stray Straws*, Jan. 15, doubts whether bees ever actually move eggs from one hive to another. I had an experience last summer that has absolutely convinced me that bees actually do steal eggs and move them to their own hive in time of need.

Last June I hived a swarm that had issued from No. 3. In hiving I saw that they had a very fine-looking queen which, of course, went in with the rest.

About a week later I had occasion to look in this hive to see if every thing was all right. I found about five completed combs nearly full of honey, and some pollen, but no eggs nor brood. All the combs were carefully looked over for the queen, but she was nowhere to be found; so, thinking that I had possibly missed her, I went on, hoping all might be well by the next time I came around.

Exactly a week later I again could find no eggs nor brood; and after shaking all the bees through a queen-excluding zinc, and finding no queen, I sent for one. A few days afterward, on again looking in, I found a lone egg. A diligent search was at once made for more, and two more were found, one in the same comb and one in another.

No queen could be found. It was not the work of a laying worker, as I had been troubled with them before and could see that it was none of their work.

This was something I had never before encountered, and the developments were noted with jealous care. Queen-cells were built over all three. They were sealed. The day before they were due to hatch I accidentally destroyed one of the cells. The next day I found the two cells hatched and two large vigorous virgins on the combs. A few days later one was found dead in front of the hive. The other was in the hive, and mated. Five days later this queen began laying and kept at it all summer. I still have her to-day, and she is just as good as any I have ever bought.

This incident has made me a stanch supporter of the theory that bees do move eggs from one colony to another. I should also like to say that the Miller plan of introducing queens by the smoke method is by far the best way to introduce queens. I tried it for the first time on the very day that I received the issue of *GLEANINGS* containing it, and have used it every time since, and have yet to fail the first time.

Stephenson County, Ill.

DOUBLE-LENGTH SECTIONS CUT IN TWO

Furnishing the Bees a Larger Frame in which to Make Comb Honey

BY ELMER GRESSMAN

I have often had combs of honey built in frames as straight as a board, with nice white cappings, and have wished that it were only in sections, so that I might realize the price of fancy comb honey. I have tried selling the large combs at a reduced price, but with poor success.

I have quite a trade in extracted honey in 5 and 10 lb. pails, but some years ago some of my customers inquired for comb honey. Most of them belonged to the class who are trying to reduce the high cost of living; and being in sympathy with their efforts I took along some nice shallow frames of honey, which I offered at a very reasonable sum, not including the weight of the frame, which I figured out, so there would be no excuse not to buy. My liberality was not appreciated, however, for almost every one said, "Oh my! those are too large. I wanted it in those little boxes."

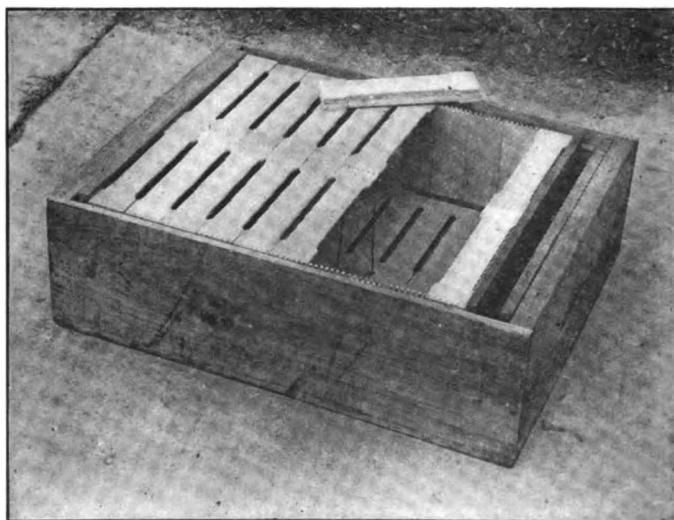
After explaining that it was harder to produce it in little boxes, and listening to their numerous objections, I made up my mind that I was not equal to a woman in an argument, even in my own line. So I went home with part of my shallow honey a sadder but wiser man. That started me to thinking night and day. I thought that, if the combs were half as large, perhaps I

could keep up my end of the argument; but I found later there was no argument needed. Never have I had a complaint about the large size of the section.

The difference in the cost of producing comb and extracted honey is getting greater every year. We see all kinds of inventions to aid in cheapening the production of extracted honey; but if one looks back he will find there has been very little done to improve on the production of comb honey. For this reason it can easily be seen why the drift has been so strong toward extracted honey.

We all know that bees will not work in sections as well as in extracting-frames, and that they are still more averse to them if the sections are divided off by separators. I think my invention will be easily understood by the aid of the illustration herewith produced. The sectional frames are made by pressing together six dovetailed pieces to make a long section which can be cut apart in the middle to make two later on. Of course the dovetails must be made so they will come right. There is a small metal stay to support the top section strip. This stay causes a depression in the surface of the comb right where it should be cut later on, and then the extra sides of the sections are pressed on, making two complete boxes of honey from one frame. These are then put in a regular shipping-case to drain for a few days. The shipping - case should have a tin tray in the bottom while draining to catch the drip, and exchanged later for a paper one.

There is very little work about the whole process, as the sectional frames can be assembled very rapidly with my press. There is no necessity of putting the sections back on the hive for the bees to finish them, as the artificial side is hardly noticeable. The stay causes a nice

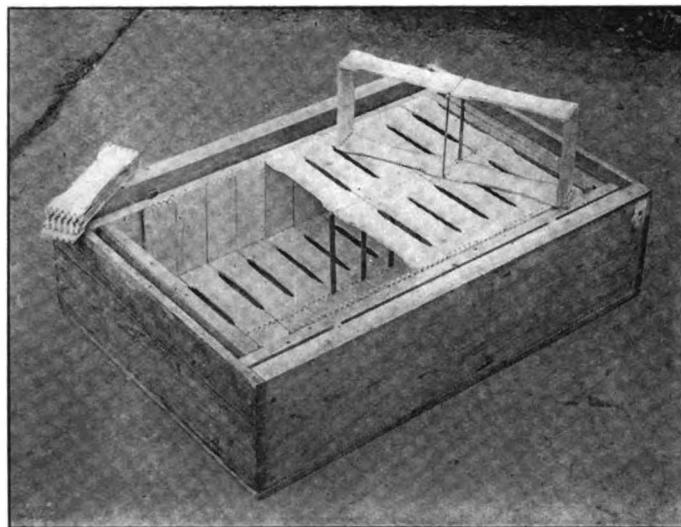


Gressman's super for producing honey in double-length sections. After the frames are full the combs are cut in two in the middle, and the frames taken apart. The fourth side of each section is then pressed on, and the section is ready for the market.

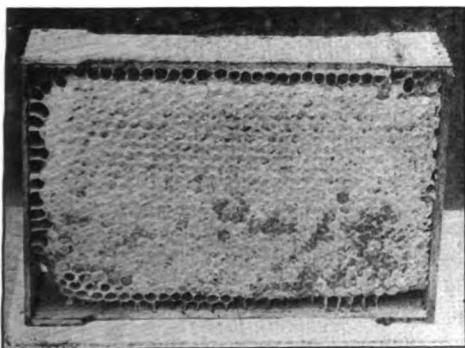
rounded edge like the natural side.

The sectional frames are used crosswise of the super with full sheets of foundation, and with the hive level from front to rear; and with fairly strong colonies straight combs will be the result. If there should be any partly filled combs during a poor season they can be extracted the same as shallow frames.

I would advise two sizes of boxes— $6\frac{3}{4} \times 5 \times 1\frac{1}{2}$ for local trade; a double box fitting a ten-frame super crosswise, or a $5\frac{1}{2} \times 4 \times 1\frac{3}{8}$ for eight-frame supers which can be used on a ten-frame hive if neces-



Double-length section-super adapted for eight-frame hives.



The finished section. Note that the right-hand side is the one that was cut.

sary, provided queen-excluding zinc is used with a wide frame margin at the sides to make it wide enough.

Hamburg, N. Y.

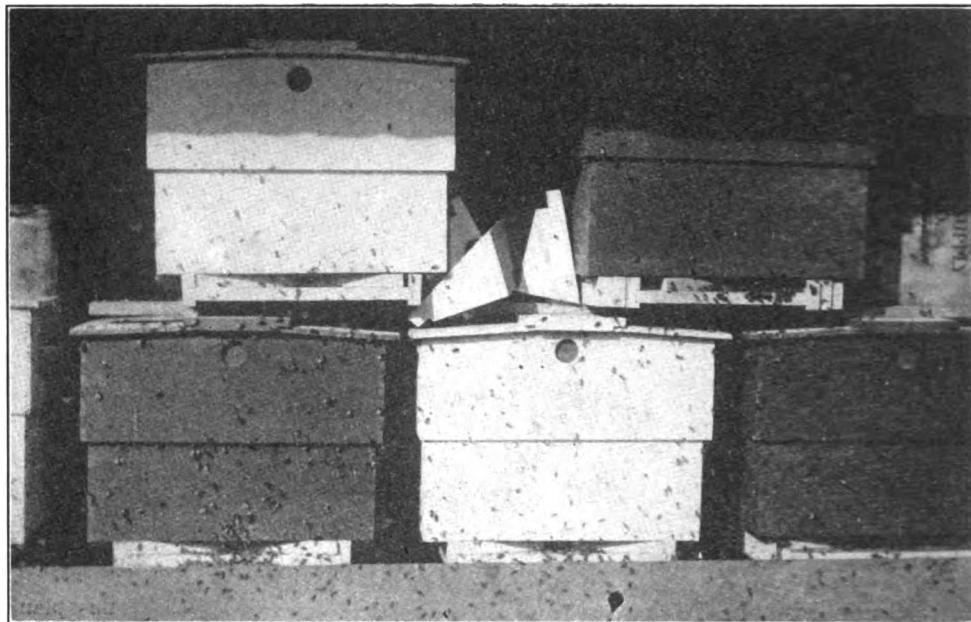
[In our opinion the value of this plan hinges upon one point—viz., whether the bees work more readily in long shallow frames fitted with foundation than they do in small boxes like the regular-sized sections. A number of beekeepers producing comb honey in shallow frames have reported to us that it costs them practically as much to produce the honey in the shallow frames, pound for pound, as in the small sections; that the reason bees enter extracting-supers more quickly is because the combs in the latter are already built. We ourselves seriously question whether the slight advantage gained by the larger frames would make up for the greater amount of labor required in putting together the six-piece frames with the stays, cutting the combs apart, fitting in the third sides, draining, etc. We may be wrong—we have been before—and if we are we shall be glad to be corrected.—ED.]

EXTRACTING FROM THE BROOD-COMBS BEFORE THE HONEY-FLOW TO GIVE THE QUEEN ROOM

BY GEORGE M. HUNTINGTON

In the production of comb honey, which is the only honey produced in this vicinity, alfalfa is the main source of nectar. I find that, if colonies are brought through the winter strong they will build up and gather new honey for brood-rearing, and there will be from one to two full frames of old honey

remaining in the hive, according to the strength of the colony. The strong ones will have the most left, and will commence to store in the brood-frames so that by the time alfalfa is in bloom (or from the middle of June to July 10, which is the time two-thirds of the honey crop is gathered), the



Bees flying on a warm day in January, from colonies wintered out of doors.
Photographed by Chas. Y. Hake, York, Pa.

brood-chamber becomes clogged with honey, and crowds the queen to the lower part of three or four frames (I use ten-frame hives), so that, by the time the main flow is over, the strong colonies become weak on account of restricted space for brood, and gather little honey the rest of the season.

On the other hand the colonies which are weak at the start will consume all the old honey in brood-rearing, and do not get much of the early honey on account of not having a strong field force at that time, so that their queen does not get restricted in brood space. These colonies will become strong a little late for the beginning of the main flow, but will remain strong throughout the rest of the season, and store twice as much in supers as the former colonies do during this latter period, and they are then apt to be the strong colonies the spring following.

Would extracting two or three frames from the brood-chamber of the strong colonies a week or ten days before the main flow keep these colonies strong the rest of the season? If so, would it stop work in the comb-honey supers? If the queen occupied the extracted combs as soon as returned to the chamber (say there are three combs to extract, and that it is done one frame at a time three or four days apart, and inserted in the brood-nest between the brood, and the season is warm at that time),

there will be no chilled brood. What would be the result in the supers if the bees stop work there?

As to spreading brood, it can be done here any time after May 15 in ordinary years. When I find a colony intends to swarm I brush every bee from the frames and put the frames into a new body, leaving a comb of unsealed brood, and perhaps a comb of honey on the old stand. All the sealed brood (and there will be very little unsealed brood in the new body) is placed on a new stand and queen-cells destroyed, and a new queen placed between the combs as soon as enough young bees have hatched to hold the queen from absconding. I do not lose any brood from chilling. Of course the entrance is made small until there are enough to guard it. The old queen is left with all bees, young and old, to draw out the new combs. This overcomes swarming for the season.

I have never had any spare combs at this season, so I could not put empty combs into the brood-chamber to see what the result would be. I have tried frames of full sheets of foundation, which stops work in supers until the new sheets are drawn out, and the queen prefers the old comb for her egg-laying. I could, to an extent, strengthen the weak colonies by taking hatching brood from the strong and exchanging with the weak for unsealed brood; then both

queens would become honey-bound and gather but very little of the later flow. If extracting from the brood-chamber would increase the amount of brood during the period just before and while the main flow is on, the honey crop of the later flow could be doubled; and even with my small apiary the extractor would pay for itself the first season. The late honey is of a much heavier body than the main flow, and does not grade as high. The main flow is about 75 per cent No. 1; the later flow, about 75 per cent No. 2.

A strong colony produces three cases of honey which has the largest per cent of No. 1. A weak colony produces three cases mostly No. 2. A colony that keeps strong throughout the season will produce five cases averaging more than 50 per cent No. 1.

For extracting from two to three combs per season per colony in an apiary of 75 to 150 colonies, what size of extractor would you advise? The chances are that this will remain a comb-honey territory on account of the heavy body of the honey, and the extractor would be used only to relieve the brood-chamber or for extracting from combs discarded on account of drone-cells or other faults.

Bishop, Cal.

[After reading the above, one can not fail to be impressed by the fact that locality, in spite of the frequent jests whenever the name is mentioned, is an important item to be considered, for it is emphatically true that one system of management will not apply in *all* places by any means. This question of extracting before the main honey-flow is one of these problems that depend upon the locality. In our opinion there are few localities indeed where extracting before the honey-flow is necessary; but under the conditions mentioned by our correspondent it is probable that the judicious use of the extractor in giving the queen room to

lay would be the wise course to pursue. If there is any regularity about the oversupply of stores before the main honey-flow, one might ask whether it would not be better to supply less stores in the fall, and so avoid the necessity of extracting in the spring. Perhaps, however, it would be risky, if not altogether impossible, to do this.

Concerning the use of the honey-extractor in the spring, no less an authority than E. W. Alexander advocated this very thing. We quote from page 28 of Alexander's "Writings on Practical Bee Culture:"

I honestly think a moderate use of the extractor through the latter part of May and fore part of June, especially when running an apiary for comb honey, would be the means of many beekeepers securing twice as much surplus as they usually do. Here at the North, May is the month of all the year when our bees require the closest attention. It is then that we should care for them so that every inch of comb in the hive may be utilized for brood-rearing that can possibly be used for that purpose. Bring your extractor into use, cleaning your hives of nearly all capped honey, and see to it that every queen in the apiary is doing her very best to crowd the combs with brood; then you will soon have those strong colonies that will give you a fine surplus, and at the end of the season you will hardly believe it when told that the summer has been a poor one for the production of honey.

If the main honey-flow is preceded by a comparatively long period of warm weather, no doubt there would be no risk in using the extractor; but it would seem to us unwise to extract *just before* the main honey-flow, as otherwise the bees would probably have a tendency to put the new honey directly back into the same combs, and it would then be harder to get them broken of this habit than if the honey had been left there in the first place. Moreover, nothing would be gained along the line of providing more room for the queen.

We do not feel competent to cover the whole ground suggested by our correspondent, and we should like to hear from others, therefore, who may have had experience along this line.—ED.]

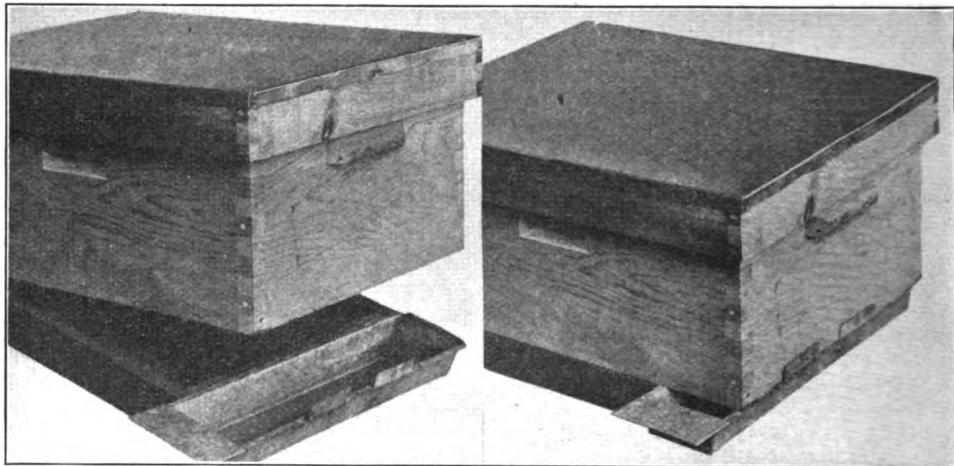
A BOTTOM-BOARD FEEDER MADE ENTIRELY OF METAL

BY JOSEPH FINSTED

The accompanying picture shows a metal bottom-board feeder which has proved more satisfactory than any other feeder I have ever used for feeding bees in cold weather. Last fall I had over 200 colonies that had to be fed from 5 to 20 lbs. each to give them ample stores for winter; but on account of other work I neglected the bees until the first part of October. Being so late in the

season I had planned to feed in a wholesale way so as to be ready with the feeding before cold weather set in; but, alas! when I was ready to go on with the wholesale feeding my plans were shattered on account of cold weather that set in unexpectedly.

I tried several feeders that are now on the market, which are used over the brood-nest; but those feeders failed entirely to



Joseph Finsted's metal feeder, designed to fit under the back end of a hive like the Alexander feeder. Note that the edge of the tin on one side projects enough to rest on the end of the bottom-board, while on the other side it extends straight up, providing easy means of fastening to hive-body with a nail.

attract the bees on account of the cold, so I had to resort to some bottom-board feeder which would bring the syrup or honey in closer contact with the bees. Then, in the smaller quantities, the feed could be stored before getting cold.

I tried the Alexander feeder, but found the capacity too small, and it was also rather difficult to attach it to the hives. I then looked for a feeder that would overcome those difficulties, and at the same time be more substantial and have better lasting qualities than any wooden feeder. The feeder shown answers these requirements,

and it can be used on either 8, 9, or 10 frame hives.

St. Paul, Minn.

[Mr. Finsted does not explain how the feeder can be used under hives of different widths. There are two sliding covers for each end of the feeder. (Only one is shown in the engraving.) When a narrow hive is used, both ends project, being covered by the slide. When the ten-frame is used, only one end projects and the slide on the other end may be removed if desired and not used at all.—ED.]

A SUBSTITUTE FOR POLLEN IN THE HIVE

BY JAMES W. WILSEY

Last March, when I examined my bees, I was much disappointed to find that no brood-rearing was going on. It was evident that brood had been reared in the winter, and there was little pollen in the hives. There was one hive in which I was sure there would be brood as the previous year the queen had kept it full of brood early and late; but this hive had none whatever.

I then took an empty comb, and, laying it horizontally upon a table, I placed a scoopful of ordinary wheat flour on it and worked the flour back and forth with a post card until it filled all the cells. I then rubbed my fingers over the comb to pack the flour down so that it would not fall out when the frame was placed in an upright position. This frame I placed in one of the

hives as far away from the cluster of bees as I could get it. I did this so that I could get at it to examine it without breaking the cluster of bees, as the weather was cold. The effect was magical. Brood-rearing on a large scale commenced at once, and many bees could be seen at work on the frame of flour. I placed similar frames of flour in my other hives with the same result, and my colonies were fully two weeks ahead of the colonies in the neighboring apiaries.

These frames of flour also kept the bees from going out for pollen on cold and windy days, as on such days my bees worked on the frames of flour while my neighbors' went out in the fields and swamps looking for pollen.

We have all seen the yellowish and brown-

ish scales which accumulate on the floors of the hives when much brood-rearing is going on. These scaly particles the bees remove to the alighting-board. As soon as the bees begin using flour for raising brood the bottoms of the hives become covered with white scales, and the scaly particles which they

remove to the alighting-board are also white.

My hives are kept in protecting cases the year around, and the bees are warm and comfortable in the blustery weather of spring.

New Paltz, N. Y.

TRANSFERRING FROM A TREE ON THANKSGIVING DAY

BY AUSTIN D. WOLFE

About 7:30 on the morning of Thanksgiving day, 1912, I looked out of the window and saw my neighbor Ashby coming out of his gate. He had an ax in one hand, a bucket in the other, and he invited me to go with him to cut a bee-tree in his pasture. I took Paul, an ax, and a smoker and veil. This seemed to promise a good appetite for the Thanksgiving dinner.

The tree proved to be a linn (Southern basswood), and fairly solid. We developed considerable sweat before it fell. While we took breathing-spells, a tall sinewy mulatto swung past us at the foot of the hill, with an ax and bucket.

"Better come along o' me, Mr. Wolfe," he called.

"Where to, Nim?"

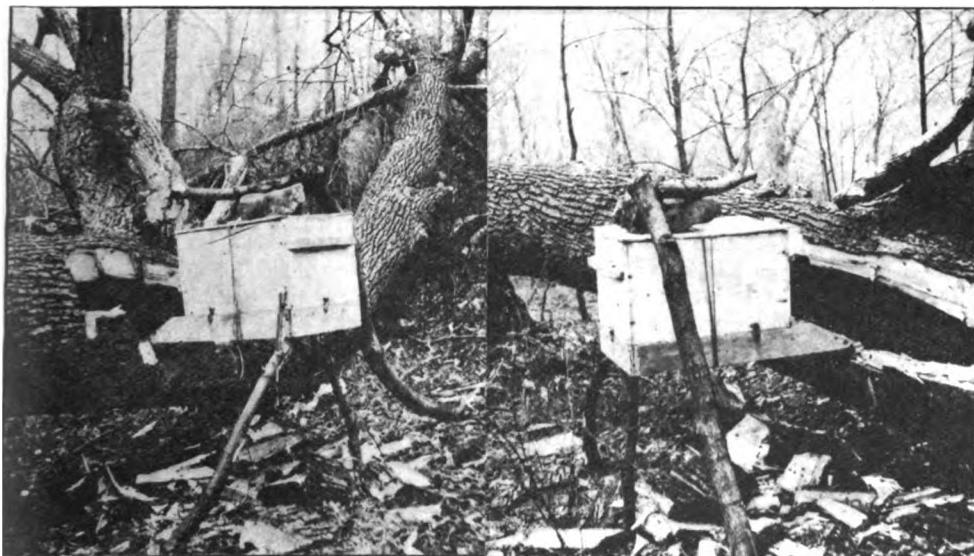
"Oh! I'm goin' to cut the biggest bee-tree I ever see," he replied; "better come and get some."

I did not go, but remained and saw how much (or how little) Ashby got. The colo-

ny was small, the honey poor. It had not paid for the effort.

But that evening Paul brought me word from Nim that he had taken over 50 lbs. of honey, and that the bees were golden Italians. So next morning we went again, and roamed the timber pasture until the place was located. It was another big linn, lying on its side on the slope, with the evidence of yesterday in chips, bark, and old comb. In the hollow of the trunk there hung as pretty an inverted pyramid of bees as I ever saw. Right then and there I should have photographed them.

Into the frames of the jumbo hive I tied panels of comb found on the ground. Then I set the hive in the hollow of the tree and began work. At first I scooped them by handfuls and dropped them into the top of the hive. Then the smoker came into play. The bees dodged, and hid and tried to escape through hollow branches and behind dead wood, but at last learned the way to



Hive located close to an exposed cavity in the tree where the bees formerly made their home.

the hive and marched there. I worked for two hours, and then was able to record only indifferent success. Nowhere was it possible to catch sight of the queen or to gain a good indication of her location. The shadows began to lengthen under the cover of the hill, and we felt that remaining was useless, so I propped up the hive, with the entrance still in the tree, and left it for the night.

Next morning with the little girls I went to see what further developments were noticeable. There were no bees in the hollow tree, but in the hive was a cheerful humming. Listen as I might, however, there was no indication of a queen. In the early morning, under the shadow of the trees, I made some pictures, and you can see how they turned out. We then closed the entrance, tied down the cover, and carried the hive by hand to the beeyard, half a mile away.

Now the picturesque conclusion should be that the queen appeared; that, under judi-

cious feeding, the colony thrived, and that by the following fall they had yielded a handsome surplus. Alas! not so. While I fed them the bees lived. But there was no weather warm enough to warrant sending for a queen. What the colony might have done under specially favorable conditions is a matter of speculation. Perhaps some other beekeeper will tell what he would have done under similar circumstances. February and March were cold, and the bees died.

Parkville, Mo:

[This experience only goes to prove that it rarely pays to transfer a colony, even from a box hive, in the late fall of the year. The transferred bees are bewildered, and their nest is not arranged according to their liking; and if there is no warm weather, soon the results are likely to be any thing but satisfactory. If these goldens could have remained in the tree until spring they might have been taken at that time, and built up into a useful colony.—ED.]

CONDITIONS OF THE " LOCALITY " IN GEORGIA

BY L. W. CROVATT

"Locality," that term used by beekeepers throughout the United States in discussions of every conceivable character, is truly blamed for many things; but in reading the articles from the pen of P. C. Chadwick, of California, dealing with the practical failure of the honey yield last season, I am struck with the changed conditions obtaining. This is certainly "locality." To the contrary of what Mr. Chadwick writes, I am constrained to say that in the year 1912, in the southern part of the State of Georgia, we had one of the most successful seasons. The yield was bounteous, and it is an undoubted fact that the natives were better repaid through the energy of their bees than in several years. It appears from reports sent by my friends through the southeastern section that the crop that season was the largest in a long while, the honey being of that transparent delicious coloring and body and flavor that demand the very best prices, and which is calculated, through its snow-white cappings and pleasing contrast to the section wood, to be an ornament to any table, no matter how fastidious.

The bees in this section, where wintering problems may be said to be negligible, built up splendidly for the spring flow (1913); and this being the case, the bees secured the full benefit from the myriads of flowers that, because of the "open character of the

winter," proved to be the most profuse in many years. There was a splendid yield from the tupelo, which seems to be an early spring growth in the swamps of Georgia. The poplar is reported to have been a fine source of nectar; and in later times, when the gallberry came into flower, the bees were working like mad.

The tyty, another sure source of surplus, also yielded to an abnormal degree, according to those in the comparatively limited belt, and it has been my privilege to eat some of each kind. Never have I tasted a finer flavor of honey.

The natural result of the big crop is that beekeeping in Georgia, not considering the territory of Bro. Wilder, will be given a stimulus for next year. Neighbors of the successful men have taken notice of the crop this year, and optimism seems to be in the very air.

Considering the fact that we have, in this region, none of the yielding plants regarded as "staples" by brother beekeepers of the North and West—notably clover, basswood, alfalfa, etc., the results of the spring work in Georgia and parts of South Carolina are of a particularly gratifying character.

"Gallberry" may not, perhaps, sound so romantic, as suggested in the A B C; but no one can deny the fact, who has ever



Hunting the bee-tree.

tasted the honey from this plant, that it is a superfine product which is bought with avidity by the general classes who consume honey. From the fact that at least 75 to 90 per cent of this honey is consumed in the South, however, this may explain why the gallberry and ty-ty honey are not better known in the leading markets.

Very frequently some of the big men come out in print with the statement that better values may be secured, or should be secured, for honey. The facts of the case, however, are that the average rural bee-keeper is already reaping the harvest from this source, for I find that they are now securing from 12 to 12½ cents per section at wholesale, and the demand is good at these values.

Years ago a buyer could secure all the honey needed at from 8 to 10 cents per pound; but this is now a thing of the past, for the average citizen of the country having changed over to the modern hives from

the old-fashioned box, is securing surplus in splendid marketing condition.

Two young men at Meldrim, Ga., recently purchased an apiary of 75 colonies for \$600. They increased to 160 colonies, and secured 12,000 pounds surplus of extracted honey. The bees were subsequently moved to Pennsylvania for a fall yield.

Another, at Ellabelle, purchased a large number of new hives for section honey. He transferred his entire yard of forty box hives to movable-comb hives; captured 22 swarms in the spring, and has secured several thousand pounds of comb honey, to the surprise and envy of his neighbors.



The trunk cut off four or five feet from the ground.

We may not have another big yield for some years; but the indications are that many people who see visions of some "easy money" will make a try for a crop next year any way. They may reap better than they know.

Savannah, Ga., June 23.

ONE HUNDRED POUNDS OF HONEY FROM A BEE-TREE

BY J. BAKULA

I have often had the opportunity of watching a bee-tree cut at night; but on the special occasion concerning which I write, the cutting of the tree had to be accomplished on a nice warm afternoon, as we had to leave for home that same evening.

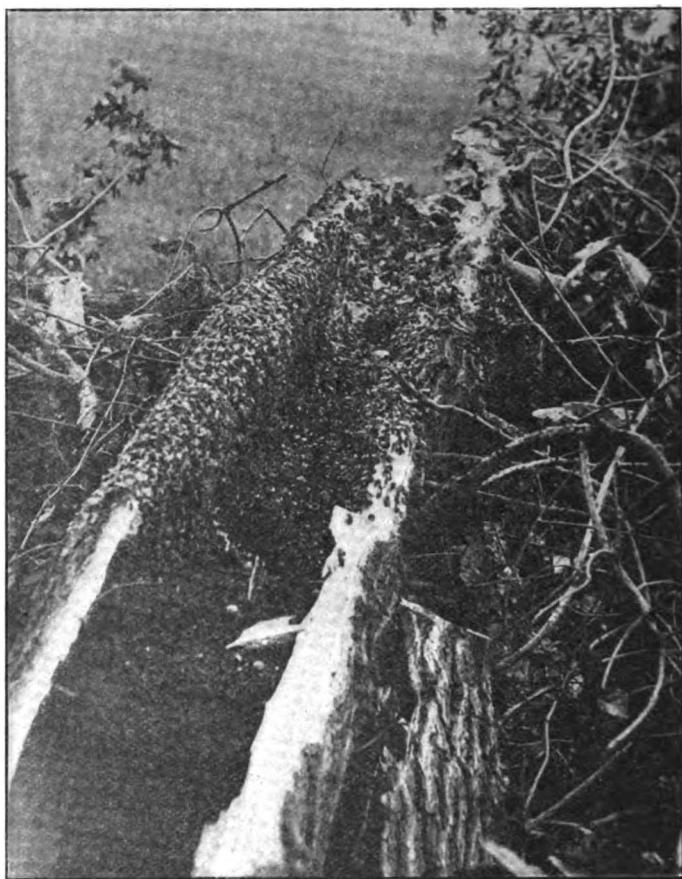
The tree was a short scrubby redoak (30 or 40 ft. tall) as often seen at the edge of a field, some twelve or fourteen inches in diameter, I judge it to be now. There were two trees growing from the same stump, so we cut it four or five feet from the ground

in order to allow the saw to enter between the trees.

When we started to cut we discovered it to be merely a shell about two inches in thickness all around, the cut we made being within a few inches of the honey. Cutting away the wood was done in a short time, as large pieces could be split at a time, as it wasn't thick.

It was a shame to tear up the honey, as it was packed in there so close and nice, the combs all being separate and not built together as seen sometimes. It occupied a space of ten or twelve feet. Had the bees had more space I'm certain there would have been much more honey, as the colony was a large one, and it had been there since early in the spring. I judge there was about 100 pounds in the tree.

I shall also have to give you an idea of how I was prepared for the battle. My friend tied a mosquito-bar over my head, but failed to tie it bee-tight, allowing three bees to enter, so that I had a chance to count them. I had on gauntlet gloves with handkerchiefs tied around my wrists. As I chopped, the handkerchiefs worked off, allowing the bees to get at my wrists; but I was game. I stayed to the finish. When completed I discovered



Section of the hollow log with one side split off, exposing bees and honey.

my wrists somewhat larger than usual, and I had a double chin, which prolonged my stay in the country a day longer. The next morning quite early the bees were all settled in a bunch underneath, so they were easily swept into a hive with a whisk-broom.

Dubuque, Ia.

[The fourth picture, showing some of the honey obtained, is given on the cover.—Ed.]

THE ACT OF AN OUTLAW

BY THE OUTLAW

Continued from the March 1st issue, page 177.

Adjoining the house was a garden of semi-tropical trees and shrubs. This garden was the property of certain people living several thousand miles away—heirs of an eccentric old man. During the old man's lifetime the garden had been one of his hobbies; but since his death the garden had

received but little care. It was in this garden, screened from passers-by along the streets, that I placed my hive of bees.

GETTING COMBS BUILT.

As I have previously stated, I used no foundation. Not one penny in money have I spent to acquire any thing whatsoever

necessary to the upbuilding of the colony. The procedure I followed was this: Three days after hiving the swarm I took all the comb built up to that time; and with the aid of a piece of twine string I tied the bits of comb into a frame. From that time on, additional frames were added as necessary, care being taken to place the new frame between two frames of unsealed brood whenever possible. From experience in making increase I have found that comb will be built faster, and will be more apt to be worker comb when the empty frame is placed in the manner just stated.

In the matter of avoiding drone comb, there is another little kink that can be practiced. That is, when drone comb is built, to make a practice of tearing it out, then reversing the frame end for end. The result is that quite often the bees think they have had drone comb yet, and build worker comb in place of the drone comb you have removed.

In order to practice successfully the foregoing, it is necessary to go through the hives two or three times a week, depending on how fast comb is being built. It might be well to state also that the practice outlined is in case comb is being built in the brood-nest. Surplus comb is a different matter. If store combs are being built it is best to let them build them as the bees see fit, or use foundation if you want worker comb.

And here, perhaps, a few remarks on the subject of wax production might not be out of the way. Some years ago this matter, aside from honey production, was quite widely discussed; and at that time, under certain conditions, I practiced wax production successfully. It was in Cuba. There, as is well known, the honey season is in the winter season during the campanilla bloom. However, the swarming season is in the summer months, from April to October, and during these months the bees transpose all the honey gathered into brood and wax—the rule being that it is almost impossible to secure any surplus honey during the summer months. As increase was not wanted, my object was to produce wax in place of bees. The method used was to have nothing but worker comb in the brood-nest, and quite often the brood-nest was contracted. In the super, every other comb was removed, care being taken to leave only worker combs. Empty frames were then placed between the combs in the super, and a queen-excluder between the super and brood-nest. The result was quite successful, the bees building drone comb in the empty frames; and as the bees desired and

expected the queen to lay in the drone comb so built, they held it open, no honey being stored in the new comb. All that was necessary to complete the operation was to make the rounds of the hives every week and cut out the comb so built. This procedure quite successfully held down swarming, and converted the surplus energy of the bees into profit.

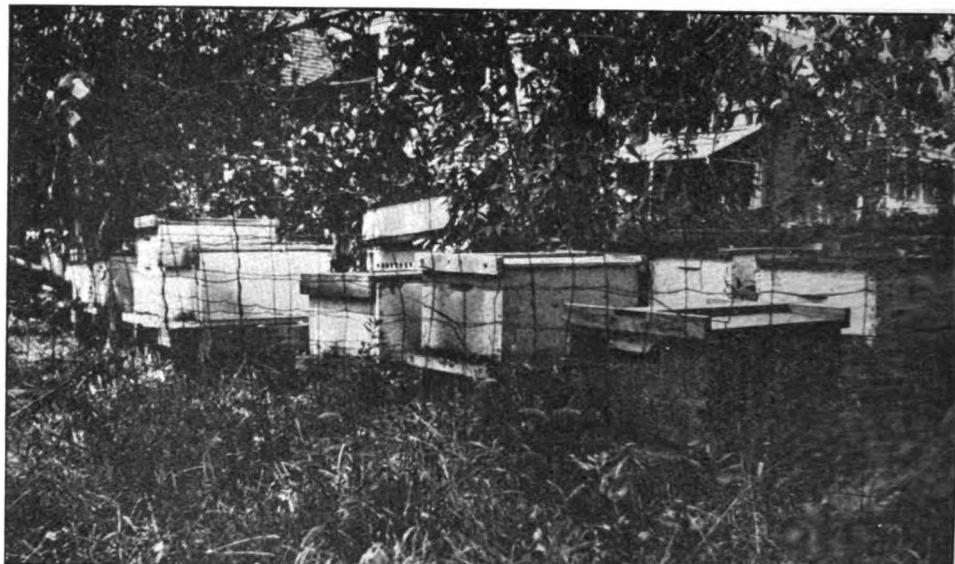
The problem here confronting me with my little swarm of bees was to build them up as strong as possible; get all the comb built that could well be done, so as to have something to work with when the real honey-flow came on in the spring. As I have previously stated, it was at the end of the honey-flow when I captured my bees. While the summer flow here is in many ways similar to the summer flow in Cuba, yet the bees have no desire to swarm. They seem to know that the winter months will bring hard times, and not a time of prosperity.

At the end of two months my colony had completed eight combs, which number filled the hive, and with the completion of the eighth comb there was another problem. To have attempted to have the bees build in the super would have been out of the question, for two reasons: First, they were not strong enough, even under normal conditions, to have allowed a sufficient cluster of bees to be formed in the super to build comb; and, second, had there been enough bees, there was not a sufficient flow of honey to induce them to build in the super.

But the bees could and would repair a breach made in a vital part of the brood-nest. So I continued as before, placing an empty frame, one at a time, between two unsealed frames of brood, the combs that were removed being placed in the super, with the result that I continued to get a frame of worker comb built every week or ten days, where, had the bees been left to their own devices, they would not have built an inch of comb.

THE ANNUAL CLEAN-UP DAY.

While matters were thus progressing smoothly within the hive, a cloud appeared on my horizon in the form of an announcement, made by the mayor of the city, to the effect that September 10 would be the annual clean-up day. Clean-up day, I might state, is an annual occurrence here. A proclamation is issued by the mayor of the city, and every householder and property owner is requested to put matters right about his premises. Briefly stated, it is a universal external housecleaning in which the entire city participates. This meant that the representatives of the heirs who owned the land where the bees were located



Seventeen colonies on a 25-foot lot in Kansas City, Kan. See article by A. T. Rodman in last issue.

would follow his usual custom of hiring two or three men for a day to prune and trim the trees and shrubs of the garden; and if the bees were allowed to remain, it meant their discovery, and the opportunity of my being a defendant in the police court, together with the confiscation, or at least banishment, of the bees from the confines of the city. In the language of Grover Cleveland, I was "confronted with a condition, not a theory," and that meant that something had to be done.

Where the true nature of a condition is understood, there is, as a rule, some way in which to meet it. While Robert Burns stated a truism when he sang—

The best-laid plans of mice and men
Gang aft aglee,

and uttered a thought that has been a popular saying ever since, nevertheless the only reason for the sad accident recounted by Burns was a lack of knowledge of the conditions; for had the mouse known and taken care to build its nest lower down than a plow-furrow, Burns would never have had cause for lament. For my part, I took the initiative, with the result that the proclamation of the mayor, the deed of the caretaker, and the acts of the laborers came to naught, and the bees remained within the confines of the city.

To be continued.

TENNESSEE BEEKEEPERS' ASSOCIATION, NASHVILLE, JANUARY 30

BY J. M. BUCHANAN, SEC.

A most interesting and instructive meeting of the Tennessee Beekeepers' Association was held at Nashville on Jan. 30, with perhaps the best attendance in the history of the Association. Papers and addresses on vital topics, together with lively discussions, took up the entire day.

The opening address was by the President, Mr. J. M. Davis, of Spring Hill, whose subject was "The Bee as Man's Co-worker." He gave an outline of the history of beekeeping, and showed the value of the work of the bees, both in the production of honey and wax, and in their aid in the

fertilization of fruit-bloom. He pointed out the fact that the apricot is the only stone fruit that is not dependent on the bees or other insects for the proper pollination of its blossoms.

"Fancy Comb Honey in Spite of Foul Brood" was the subject of a talk by L. F. Watkins, of Nashville. Mr. Watkins told how, in addition to managing a farm of 200 acres, he had cleaned up an apiary of nearly 100 colonies badly affected with American foul brood, and at the same time had produced a good crop of fancy comb honey.

In a discussion on marketing honey a number of good points were brought out, and emphasis was given to the need of proper grading and packing, and also to the advantage of holding up the price. It was shown that it is folly to spend time and labor producing a crop of nice honey and then selling for whatever the merchant offers. There is a demand for all our product in the local markets, and at good prices.

Another discussion was in regard to controlling swarming. It seems that most of the members just "let 'em swarm," as that seems to be the easiest way to "control" swarming. It was pointed out that, in the production of comb honey, with prolonged and intermittent flows such as we have, there is no satisfactory method of prevention of swarming. It is, perhaps, as well to allow them to swarm once, and then throw the strength of the colony to the swarm. When working for extracted honey it is a much easier matter, as was stated by B. G. Davis, as the use of young queens, plenty of storage room, particularly of drawn combs, and good ventilation, would go a long way toward solving the problem.

Miss Mira Tandy, of Nashville, gave an address on "Beekeeping as a Supplemental Course in the Public Schools." She favored the organization of beekeeping clubs among the boys and girls, after the manner of the boys' corn clubs. Such clubs would create an interest in beekeeping, and she thought

would help to keep the boys and girls on the farm.

Dr. J. S. Ward, State Apiary Inspector, gave a review of the inspection work for the past season. He said there was a marked improvement in the foul-brood situation in the State, and that, with proper care, the disease could be kept under control. Dr. Ward spoke of the symptoms, and gave the methods of treatment recommended for the disease. He showed that the introduction of a hardy strain of Italian stock is essential in the cure of European foul brood. As for sacbrood, he thought a change of queens all that was needed, although this had not been thoroughly tested. He said he had seen whole apiaries wiped out by sacbrood.

A paper by Porter Ward, of Elkton, Ky., was read, in which he told of producing ten thousand pounds of honey from 100 colonies, besides running a farm of 150 acres. This was bulk comb honey, and, by the way, this seems to be quite a popular way of packing honey in this State.

The following officers were elected for the ensuing year: President, T. J. Ayers, Cedar Hill; Vice-president, W. B. Romine, Pulaski; Secretary, J. M. Buchanan, Franklin. Dr. J. S. Ward and J. M. Buchanan were selected as delegates to the National convention at St. Louis.

After the convention adjourned, an hour was spent in a general social chat, which was enjoyed by all.

Franklin, Tenn., Feb. 4.

WISCONSIN STATE BEEKEEPERS' CONVENTION

BY HARRY LATHROP

The annual meeting of the Wisconsin State Beekeepers' Association was held in the assembly chamber at the State Capitol, Feb. 3 and 4. The attendance, while none too large, was better than it has been in late years. Considering the resources of the State for beekeeping, we should have one of the strongest State associations in the Union; whereas we have hardly an average in numbers. I think the reason is, our State is so rich in other agricultural resources, especially in dairying and stock-raising, that organized beekeeping is crowded out.

At the opening of the convention, the Secretary, Gus. Dittmer, announced that our President, Jacob Hoffman, had died during the year; and Vice-president Wilcox not being present, it would be necessary to appoint a temporary president. N. E. France, State Bee Inspector, was appointed,

and took the chair. He introduced, as the first and principal speaker, Rev. Father Jaeger, of Minnesota. Mr. Jaeger is at the head of the Department of Apiculture in the Minnesota State University. His topic was, "The present needs of beekeeping." "First," he said, "we should look forward to see what is the goal or object toward which we are to work." This goal, as he stated it, is the placing of beekeeping upon such a solid basis that it will yield a fair profit. He called attention to the fact that, years ago, when the farmers made and sold butter of all grades, colors, and flavors, the price was very low. Since the dairy interests have been organized, and the product made uniform and excellent, the sale has greatly increased, while the price has been getting higher all the time. The ultimate aim of the beekeeper should be the produc-



A. T. Rodman's apiary on a quarter-acre plot in Kansas City, Kan. See article in last issue.

tion and marketing of the perfect section, and then the price will follow. One great need, he said, is leaders. "Too many keep bees who are not beekeepers. We need men and women who have the time, disposition, and will to devote themselves to the occupation of beekeeping."

Casual beekeepers will not advance the industry; real beekeepers will produce and place upon the market a good and uniform product."

The aid of the State is also needed, and the State must be impressed that beekeeping amounts to something."

He told of the independent department of beekeeping in the University of Minnesota, and how it was secured through the legislature and *not* by the consent of the university. "Beekeeping," he said, "would bring as good returns as any other branch of industry, and the beekeepers must have the help of the legislature."

At the close of the address Mr. France stated that last year our legislature made a new law carrying an appropriation of two thousand dollars, which was secured easier than the one we got seventeen years ago carrying five hundred.

Next followed a paper on the subject, "Should a Young Man Specialize in Beekeeping?" Opinions differed on this. Some thought it best, while some advised going slow and combining beekeeping with some other business.

Mr. Allen, our delegate to the last National convention for 1913, was called on for his report, which he gave. He related

mostly what has been published in the journals, but spoke in particular of the fact that he had been one who did not approve of the purchase of the *Review* by the board of directors.

I will here state frankly that the Wisconsin association, as a whole, does not seem to have confidence in the National organization. There is not a good feeling. The sentiment was freely expressed that they were dissatisfied with the change in constitution whereby the National lost its protective phase.

Some spoke of a movement to start an independent National organization having the protective distinction; and finally the convention voted to send no delegate to St. Louis. However, brethren, be not disconcerted, for this is not a case in which the tail is to wag the dog.

Prof. Saunders ("Bug" department of the University) spoke on the value of the University short course in beekeeping. Mr. France, Jr., described some of the work that had been attempted during the two seasons since the department was started. While only a start has been made, and there is a lack of means, we can see that in the future such a department can do very valuable work, such as can not be carried out by the individual beekeeper.

On the evening of the first day the members took a street car and went over to the University Agricultural Department and listened to a lecture on State inspection by N. E. France, State Inspector. This was appreciated, as was also the exhibition of

materials that the department of beekeeping has gathered in one of the rooms.

One part of the program was the introduction of short talks on some new thing that each member had discovered during the past season. I will not relate any of these, because none of them proved to be new to any one except the one who gave them. Introduction of queens by the smoke method was described and discussed. It was approved by those who had tried it.

The election of officers resulted as follows: President, N. E. France; Vice-president, Frank Wilcox; Secretary, Gus. Dittmer; Treasurer, Harry Lathrop.

The writer hopes that the National convention will be a hummer, and that the Wisconsin men will come up to their annual meeting next year feeling fine, and get into line like good little boys.

Bridgeport, Wis., Feb. 9.

MAKING INCREASE BY TAKING A FEW COMBS OF BEES FROM EACH OF THE STRONG COLONIES, AND AT THE SAME TIME PREVENT SWARMING

BY W. C. MURDIN

About every eight or ten days we look through our colonies; and if we think they are getting a little too strong in bees and brood, and do not have enough room for the queens to lay, we take one or two combs of sealed brood and the bees that are on them and put them in an empty hive. We do the same with other hives that are too strong, and when we have enough combs to fill the empty hive we give them a comb of honey and also a comb of eggs, putting this latter in the center of the hive where it will keep warm. This comb of eggs will provide young larvæ with which the bees can start queen-cells if 'here is no young queen to give them. In a few days' time we thus have a good strong colony.

Some will wonder whether these bees, being mixed up from so many hives, will not fight and kill each other. We made up some twenty colonies last season in this way, and we have had no trouble along this line. I like to make up these artificial colonies on a good hot day if I can, for then most of the old bees are out of the hive in the field, and there are not so many on the combs to hinder me in finding the queen. I always make sure that I do not get the queen on one of the frames of brood that I take out, of course. Most of the bees taken away are young bees, and they mix with bees from other hives easily, and also stay in the new hive without trouble, for, so far as *they* are concerned, one hive is just about as good as another. However, when the new hive is about full of bees, if I see any of them that look as though they were going to fight each other I give a few puffs of smoke, and they soon quiet down.

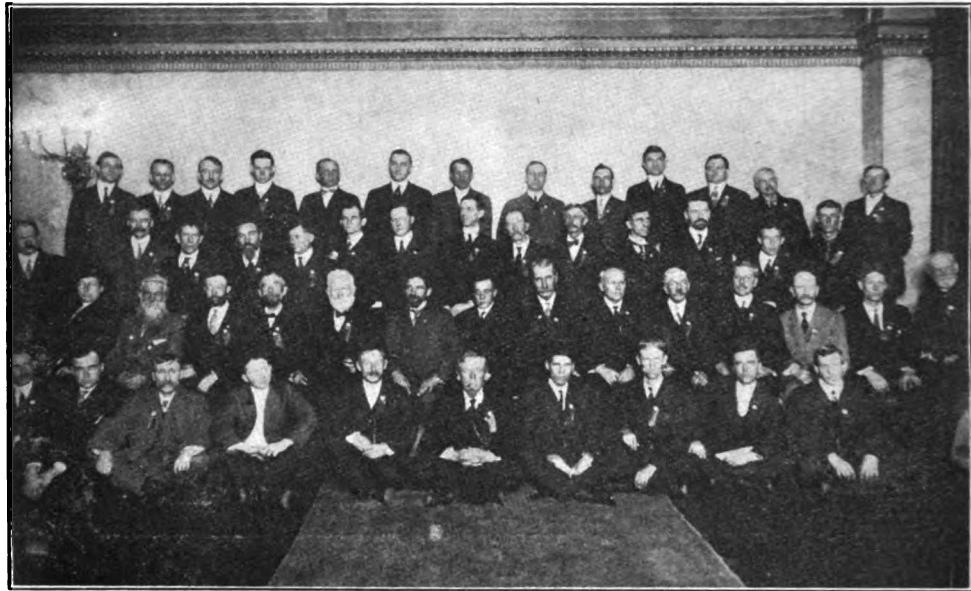
Some will say that it takes too long to wait until the bees can start queen-cells of

their own, so, if desired, one can provide young queens, either of his own raising or some bought from a breeder, and give one to each new colony started just as though requeening.

If one has all the colonies he wishes, and does not care to increase his apiary too much, it is well not to give the bees a laying queen, but let them start queen-cells of their own. It will be some time before there is any brood from the young queen. Consequently it will be quite a while before there will be more new bees in the colony.

In about ten days after going through the old colonies the first time, go through them again and see how strong they are. If any of them show signs of starting queen-cells, showing that there is danger that they will swarm, take out a comb or two of brood and shake the bees all off back into the old hive; then put these combs of brood in the new hives that were started some days before, at the same time taking out of the new hive some of the combs that had brood in them when the colony was first started. By this time these should be empty; and if these empty combs are put back in the old colony the old queen will have more room to lay in. In this way the old queen can keep both colonies going until the new colony has a laying queen of its own. Then, too, giving the old queen plenty of room to lay in helps a good deal toward preventing swarming.

By the old way of making increase it often makes both the new and the old colony weak for a long time to come; while by the plan that I have described, of taking a comb or two of bees and brood at a time, the old colony is left in good condition for work at any time when the honey-flow comes. One can give the new colony enough



Delegates in attendance at the meeting of the National Beekeepers' Association, St. Louis, Mo., Feb. 17, 18, 19, 1914.

combs of bees and brood right along to make it just as strong as any colony in the yard. We have started new colonies this way quite early in the season, even when the weather was fairly cold. But when the nights are cold we cover the hives up until they are well protected, and we have never lost a comb of brood from chilling. We have some quick changes, too, here in Man-

itoba, in the spring, and some very cold windy days that are hard on the bees.

Last season none of our old colonies wanted to swarm, in spite of the very hot weather that we had. We like to keep all colonies good and strong right along, for the hives that contain lots of bees are the ones from which we get most of the honey.

Gladstone, Man., Can.

BEEKEEPING BY A FARMER'S WIFE AMONG THE MOUNTAINS OF NORTH CAROLINA

BY MRS. J. T. REEVES

I have thought that our experience with bees might interest the readers of GLEANINGS, especially the women, as I am the "beeman" at our place. My husband is a great lover of honey, and wanted to get some bees. We tried to buy some, but failed to find any for sale, as almost every one wanted more bees than he had. Then, too, some think it is bad luck to sell bees. Finally, however, when a neighbor offered us some black bees in box hives on shares we took two stands and kept them two years. Both colonies swarmed. We lost one of the swarms, and the parent colony from which the other one had issued we lost because the bees robbed it out before it grew strong enough.

Soon after this, one of my husband's friends from the other side of the mountain

said his mother had five colonies that she would sell for three dollars apiece. I thought we should not get so many at the start, as I did not expect any thing except enough honey for the table. However, my husband brought them across the mountain late in the fall, and these bees have been a constant source of surprise and delight ever since. We have made many mistakes, but I think we have profited by them—at least, enough not to make the same mistakes again.

The first season (1912) was a fine one for bees. We did not put on supers until after swarming time, and what a time we did have! We ran out of movable-comb hives and had to use all kinds of boxes. The first colony swarmed four times, and in all we had fourteen swarms. Some of these we doubled, and some we returned to the old

hives so that in all we wintered just fourteen colonies. As I think of it now it seems a wonder that we got any honey at all; but the bees did most of their swarming during locust bloom, and we secured more honey than our family of seven could use. We sold some and divided with relatives and friends. This locust honey was the wonder of every one who saw it, as, indeed, all of our honey is to the people here who keep bees on the "robbing" plan. The locust honey is water-white, and has a very fine flavor. The flow from locust is a little uncertain on account of the danger of bad weather or frost, as in the case of the year 1913.

In the fall of 1912 we had to feed considerably in order to winter the bees; but we did not feed enough. The following spring was so cold that the bees nearly starved, and only six colonies gave us surplus honey during 1913. It was so cold all the spring that we did not get any locust or apple-bloom honey. On the contrary they nearly starved until the last of June when we secured two supers of fine honey from each of the best colonies. Later we were surprised to get a super of buckwheat honey from each one, but we do not like buckwheat honey.

We had no swarming during 1913. I gave the bees plenty of room; and whenever they began to hang out on the front of the hives I propped up the brood-chamber on four blocks. I am anxious to see whether this will keep them from swarming during a good year, as I want to start an outyard

somewhere along the mountain. We live at the foot of the Blue, on the north side. On the south side of the mountain they have an entirely different climate with sourwood, honey-locust, and many other plants that do not grow on this side. I think our bees go to the south side for sourwood honey. Our side of the mountain is colder and higher, but, nevertheless, a good country for clover.

The honey in 1913 came too late for the beekeepers who depend merely on robbing the colonies in the fall, and we were the only ones who had any honey to sell. It was hard work dividing it, for the people were so anxious to buy. In fact, we had so much honey that the neighbors thought we fed our bees, and one man tried to feed his to get them to make surplus also; but he gave it up when the bees from the surrounding country nearly took possession of his place.

Our bees have paid for themselves several times over, and they certainly furnish plenty of entertainment. They add much interest to the life of the farmer's wife, to say nothing of the money. I have chickens, turkeys, guineas, pigs, and calves to attend to, but I prefer my bees to all of them. My friends laugh and tell me I am bee-crazy; but they show some interest at once when I tell them how much money I have made from them. Beekeeping is just as much a woman's work as taking care of chickens, and I never get too tired to hive a swarm or take off a nice super of honey.

Laurel Springs, N. C.

VALUE OF BEES FOR TRANSFERRING POLLEN TO DIFFERENT VARIETIES OF APPLES

BY J. C. M. JOHNSTON

I have received so many queries from readers of my article in GLEANINGS, May 1, p. 316, on spraying apples and pollinating the blossoms by means of bees, that I think it well to explain the matter more fully.

When apples are in bloom, bees fly from flower to flower and from tree to tree to collect the honey. Some of the pollen of the blossom clings to the bees; some of it is brushed on the next flower; some is carried to the hive for bee-bread. But the part that is transferred from flower to flower pollinizes the ovaries of the blossom, so that they begin to grow and keep on growing until they develop into an apple. Bees are thus of vast importance to the apple-grower, especially since the pollen does so much more good if it is carried to another flower

instead of falling on the organs of the flower where it grew. It does more good if it is carried to a different tree instead of to a blossom on its own tree. Finally, it is still more valuable if the bee carries it to a different variety of tree from that on which it grew—say from a Northern Spy to a Baldwin or *vice versa*. For this reason modern orchards are often planted with the varieties alternating—first a row of Baldwins, then a row of Northern Spies, then a row of Greenings, and so on until the whole orchard is planted. The result is that the bees and the wind can readily carry the pollen from Greening to Spy, from Spy to Baldwin, so that each apple is pollinized by pollen from a different tree and from a different variety. Then the apples are big

ger, richer, redder, more resistant to late frosts, and better keepers. Hence the orchardist wishes to keep as many bees as he can to pollenate his blossoms.

Now, how shall we regulate the spraying for codling worms so as not to kill the bees when they come to the bloom for honey, and, incidentally, to pollenate our young apples? Easily enough if we just wait until the right time for spraying. After the blossom-leaves (or petals, as they are named) fall, the nectar dries up, the stamens and other organs in the flower shrivel, the calyx opens wide, and the young apple stands erect on the stem. The bees now cease to visit the trees, and the orchard is in just the right condition to be sprayed for codling moth.

Take your gasoline-sprayer; set the pressure gauge at 200 pounds, and with a Bordeaux nozzle (not a Vermorel nozzle) shoot the spray downward into the erect end of every young apple on the tree. To

do this you will have to stand on a tower on the spray-rig, or else have a gooseneck on the end of your 12 or 14 foot bamboo spray-pole, to direct the spray downward into the upright young apples. The apples are in the right condition, wide open, and upright, for about seven days after the petals fall. At the end of the seven days the blossoms begin to close up and the apples to turn downward on the stem. The poison is now within the calyx (cup), and when the worm hatches on the leaf beside the apple, and crawls into the calyx for its first meal it gets a tiny atom of the poison, dies, and goes no further. This whole range of activities — beekeeping, pollinating, spraying, closing the blossoms, developing the apples — seems so nicely adjusted by nature in order to furnish the greatest encouragement for the beekeeping orchardist in his interesting but arduous work.

New Wilmington, Pa.

HARVESTING SWEET-CLOVER SEED

BY F. W. LESSER

Wesley Foster asks for "a real good method of gathering sweet-clover seed," p. 8, Jan. 1. I have saved considerable seed; and while I do not know that my methods are real good, I do know that we have lost but little seed.

In 1912 we cut a patch of a couple of acres, and, it being near home, we used a grain-binder to cut it with. We cut it while the dew was on, and very little of the seed shelled off. We then put the bundles in shocks, the same as grain, and let stand till the stalks were thoroughly dried out, when we made a stack of it to await the thrashermen. We would have put it in the barn if we had had room.

In hauling we spread canvas or horse-blankets over the hayrack to catch what seed fell off. In 1913 we had four patches (about five acres in all) three miles from home, and, as it was inconvenient to take a binder that distance, we cut it with a mowing-machine. A man followed the machine with a fork, and laid it to one side in small forkfuls out of the way of the machine on the next round. It was allowed to lie in this manner about two weeks, or until the stalks were dried, and then hauled and stacked. It does not handle nearly as easily this way as it does when in bundles from the binder, and I would prefer cutting with a binder when possible.

Any thrashing-machine can thrash it, but they leave about thirty per cent of broken

stalks, etc., with it, which must be removed with a fanning-mill.

In cutting small patches with a scythe we simply let it lie in small forkfuls until cured. It may need to be turned in wet weather, but it takes a lot of water to hurt it. We have tried thrashing it with a flail, etc. That way is all right for a small quantity, but we never could get all the seed; a machine gets practically all of it.

It is difficult to determine just when to cut it to get the maximum amount of seed, as some seasons there will be seed in all stages from the blossom to the ripe seed at the same time; and if we wait for all to mature, that which ripened first may have dropped off. The fully developed green seed will ripen to a certain extent on the stalk after being cut, but I do not believe the seed is as good as that which ripens before cutting.

It is a great crop, and I expect to plant nine acres the coming spring.

East Syracuse, N. Y.

A Narrow Range of Vision

Sylvia, supple and slender, and Aunt Belle, bulky and benign, had returned from a shopping tour. Each had been trying to buy a ready-made suit.

When they returned home, Sylvia was asked what success each had in their efforts to be fitted. "Well," said Sylvia, "I got along pretty well, but Aunt Belle is getting so fat that about all she can get, ready-made, is an umbrella." —*The Youth's Companion*.

Heads of Grain from Different Fields

\$75 Worth of Honey the First Year

I started in the spring with 12 colonies. I got nine swarms, some my own, and some from my neighbors. I also bought nine colonies (in old hives), making a total of 30 colonies. I lost two by old queens dying, leaving 28 to winter.



Fred E. Osborne with a couple of his combs of bees.

Secured \$44.12 for the comb honey sold, and \$31.72 for the extracted. This is a fair average, considering some of the difficulties under which I labored.

Norwalk, Ohio.

FRED E. OSBORNE.

Wires Held by Staples instead of Being Threaded Through Holes in the End-bar

During the past season I have been using $\frac{1}{4}$ -inch double-pointed tacks to fasten the wires to the frames instead of threading them through the holes in the end-bars, and find it easier, requiring no special apparatus to hold, measure, or tighten the wire. The staples are also better since the wires can be drawn tighter, and they do not become slack after the foundation is put in the frames, as they always do with the usual method on account of the wires sinking into the wood.

My usual method is as follows: In a small board I drive a ten-penny nail deep enough to be firm, set my spool on this, and drive another nail far enough from the spool to allow the spool to turn freely and prevent the wire from unwinding when it is cut. Then I take a case of hives, turn it down so the hive-

bodies rest on the end, and seat myself with one end of this workbench opposite my left hand; place my spool near the center, and a pile of tacks at my right, and with a good tack-hammer I am ready to begin work.

Taking a frame in my left hand, and resting the end-bar flat on the bench, I start my first tack, tie the wire in it, reverse the frame, draw enough wire from the spool to reach the other end of the frame, place second and third tacks over the wire, driving them about half way in; reverse the frame, and continue till the last tack is reached, when the wire is cut and tied. All tacks should be set parallel with the frames. Then placing the end-bar flat on the bench, all tacks are driven in till the wire is tight enough.

The only disadvantage I find is that it requires care to keep all wires in the center of the frame; and until one becomes used to the method he will likely get a few sheets of foundation slightly out of line. Occasionally driving in a tack to tighten the wire will pull the tack at the other end, but with a little practice this will seldom happen.

The advantages are that the wire is taken directly from the spool, and there is no chance for it to snarl or kink, and there are no loose ends to bother at any time. Personally I find it much easier to place the tacks over the wire than to thread the wire through the holes. The great advantage of this method is that the wires never become slack; and if the foundation is not drawn out at once after being put in, the injury is far less from buckling and warping.

BULK COMB HONEY HELPS THE SALE OF EXTRACTED.

Perhaps most beekeepers would prefer producing extracted honey to any form of comb honey, but realize that the extracted not only brings a much lower price but is much harder to sell at any price. This season I have been selling on the local market bulk comb and extracted honey put up in the same style of glass packages; and while at first the bulk comb sold much more rapidly than extracted, of late the demand for extracted has been increasing in proportion, a greater number taking advantage of the difference in price. The bulk comb attracts the attention of the customers, and the price of the extracted attracts their pocketbooks.

The uniform packages, and the fact that they are put up by the same party, help to avoid suspicion that the extracted is adulterated. I believe that I have sold at least twice as much extracted honey as I could have sold had I been selling it alone, besides the larger amount of bulk comb I have sold with the same effort.

What we need for bulk comb is a wide-mouth glass jar sold at the price of the Mason. The Premium is very good, but is hard to get, and the price is too high and breakage in transit too heavy.

Oklahoma City, Okla.

W. H. HOBSON.

[If one does not like the usual plan of threading wires through holes in the end-bars we should think a more rapid method would be the bent-wire-nail plan which has been suggested several times. The nails are driven in part way, bent over, forming hooks, and the wire strung back and forth.—Ed.]

Heat in the Hive as a Cause for Swarming

After reading the article in your September 1st issue, p. 598, about Mr. Vernon Burt's scheme to prevent swarming, I thought that possibly the experience of an amateur with bees might be of interest; and when I say "an amateur," and inform you that I am the owner of one single colony of bees you will agree that my experience along the lines of bee-keeping will not add greatly to the knowledge of your readers; but that idea of heat in the hive being

one of the prime causes of swarming tallied so well with my experience of 1912 that I feel emboldened to write.

This is the third year of my actual experience with owning and caring for bees. I started with a single hive which, on the advice of the party from whom I purchased, I located in the second story of my barn, a narrow slit cut through the siding allowing the entrance or landing board to project through this slit outdoors, while the hive was on the floor of the second story close up to the inside of the siding. It was in the southwest corner of the building, and on a hot day this corner was a little hotter spot than any I ever hope to inhabit in the future. During the day my business calls me to the city (I am a suburbanite on four acres). During the season of 1911 I realized too late that my bees had swarmed, and that I had donated the swarm to a neighbor less than half a mile away. That fall I realized about 25 pounds of honey from my bees. The next year, 1912, when the hot days came I noticed that my bees would cluster around the entrance and hang in a bunch to the entrance-board until long after dark. I figured it out that the inside of the hive must be so hot that the poor bees simply followed the plan of poor human beings who live in the crowded and hot tenements of our cities—whenever possible, to sleep (or at least stay) out on the roofs during the nights of the heated term. And this is what I did to help out the situation.

It was a very hot Sunday afternoon. The bees were flying in numbers around the entrance and hanging to the board in bunches. I took a big pail of cold water up into the barn, and, soaking some heavy burlap bags and strips of old carpet in this cold water, I laid the ends over the top of the hive, allowing the wet bags to hang down around the sides, and sprinkled what remained in the pail over the whole thing so that it was dripping. Then I went outside, and sat in the shade to watch results. In thirty minutes the bunches of bees had dwindled fully a half, and inside of an hour had disappeared. That fall I got nearly 90 pounds from my single colony, and I did not hear any of my neighbors say that Barlow had donated another swarm of bees to anybody.

Grand Rapids, Mich.

J. B. BARLOW.

Getting a Colony from a Tree without Cutting it Down

Some time ago I captured a colony of bees from a tree, following the plan given in the A B C and X Y Z of Bee Culture, introducing a queen to the bees that went into my hive. Five weeks I kept the bee-escape on the hole in the tree; then I smoked the tree well with sulphur. As the season was getting late and flowers scarce I left the tree open for the bees (now in the hive) to rob out.

In three weeks I went out, closed the hive, and brought it to town in a boy's express wagon, walking the five miles. I have a fine colony of well-marked Italian bees, and they have eight brood-frames full of honey in their hive.

I now have the two colonies up in the attic, eastern exposure, where they get the morning sun, and by afternoon the whole roof is warm. They have a direct outlet to the outside, so there are no bees in the room. There is a porch roof the whole width of the house for them to alight on, and then they can walk right into the hive.

Cleveland, Ohio. A. LYNDON HITCHCOCK.

Bees Transferred from the Wall of a House

I had quite an experience in transferring two swarms of bees from the north side of a house in October. A part of one of the swarms I succeeded in getting in a hive where I had transferred several empty combs and some brood. Some of the bees

stayed on the side of the house, and I found the queen in this small cluster of bees a few days later. She had been away from the bees in the hive so long that I thought it best to smoke the bees and queen well. I then let her run into the hive, and the bees received her all right. I am not sure whether the queen went into the hive which I placed on a scaffold, for the bees were next to the roof in the second swarm. A small cluster of bees stayed under the hive, and next to the house several days, and then flew away. I am not sure that the queen is with the bees in the hive or with the few bees which flew away.

There was enough honey, which was somewhat dirty, being taken from between the siding and the plastering of the house, nine squirrel-nests being somewhat mixed in the honey. I placed this honey in a super above the bees. I suppose there was 20 lbs. on each hive. I laid the broken chunks of honey so the bees could come up into the super and get plenty of empty comb transferred to frames below. J. W. STINE, Iowa Deputy Bee Inspector.

Salem, Iowa.

Bees in a Stump in a Cornfield

While gathering corn to-day, Nov. 8, in passing by an old stump my brother happened to put his hand on top of it when the heart, about the size of a saucer, fell in. Upon looking into the cavity he found a colony of bees with stores. The stump had rotted out from the ground up nearly to the top; but the top had not given way. The bees entered the top of the stump through a small crevice. Here is the novelty of the thing: I got a saw, cut the stump off just above the ground, or about 18 inches from the top of the stump; put it on a cloth, part of it on the wagon, brought it home, and put it near my other bees. The old stump is very much decayed; but I intend to keep it as a curiosity. I have found bees in trees and logs, but these are the first I have found in a stump in a field of corn.

Kenton, Tenn.

FRED TATE

The Advantage of Clipped Queens Late in the Spring

By clipping the queens late in the spring when it is safe for the bees to rear another, in case any thing goes wrong, which not infrequently happens, and by giving plenty of room, I find that not more than one-third of the hives will swarm, even when running for comb honey.

The swarms are given another hive-body with foundation, and the old hive is set to one side for two or three hours, or until next day, if desired, or long enough to allow all of the workers to fly from it and return to the new swarm. It is then carefully set upon a weaker hive for extracting purposes, with an excluder between, and no attention paid to cells. Of course there are a lot of bees in this old body that it seems should be shaken with the swarm; but those left are mostly heavy nurse bees; and now the question is, would they train down and become field bees, or remain nurse bees to the end? In the latter case they may as well remain with the old hive-body, where there is something for them to do.

Cincinnati, Ohio.

JOHN E. ROEBLING.

Pollen and Honey from Grape Bloom

You say editorially, Feb. 1, that there is some difference of opinion as to whether bees pollinate the blossoms of grapevines. I wish that you could be here in May and June, and take a stroll through the woods and hear the hum of the bees and smell the delicious perfume. It would make you feel good. Our wild grapes bloom one or two weeks later than our tame, and the bloom furnishes a large amount of pollen and honey.

Concord, N. C., Feb. 9.

W. D. YORK.

An Open Letter from the Secretary-Treasurer of the National Beekeepers' Association

Dear Bro. Beekeepers:—I wish to call your attention to the fact that the beekeeping industry is coming more and more into the hands of specialists who give it all (or nearly so) of their time and energy. These specialists are demanding, and with good reason, that the National Association give the practical features of the business greater attention, and leave the theoretical and educational work to the bee-journals and the special advocates in which we are so fortunate in having so many able representatives, employed and liberally paid by the different States and the general Government.

The time has now fully come for a practical, hustling, up-to-date business campaign, backed by energy and means, going in with the determination to stimulate the consumption, increase the demand, and stiffen the prices of honey, and co-operate in our purchases. This is my private view of the matter, and it is the attitude I shall assume as the Secretary of the National Association.

Other associated industries, similar to ours, are getting splendid results along these lines by combined and persistent efforts, stiffening prices and standardizing their products, and we can do the same. We may not be able to command as much money to work out our plans as some of these can do; but we shall have a big advantage in having 50,000 or more enthusiastic "bee cranks" boosting together all over the country, giving us an advantage to start with that is worth more than any amount of mere money.

We must have money, of course, and the more the better, to pay the printer, postage, and all those things, and we shall have to "dig" for it, and you will all be called on in due time to give your share.

There is one little word, none too elegant, perhaps, but wonderfully expressive, that applies to the situation to a nicety. If each and every one of us would *boost* honey, individually and collectively, in season and out, and all the time, honey prices would soar. "Boost" it locally, and then lend a hand to the larger work that is necessary also.

It will be a pleasure for your Secretary to exchange views with you, and assist in any possible way to help matters along—act as a sort of clearing-house as it were, in the exchange of "boosting ideas."

If you do not already belong to the Association, get in as quickly as you can. I receive letters every day asking, "What are the objects and benefits of the Association?" I am going to answer that question right here, and save lots of postage. The object of the Association, in one word, is to "boost" honey and promote the business. The benefits are, a stimulated consumption and better demand for our products, and better buying facilities for our supplies. Are you with us in this?

Yours for a "boosting" campaign,
Redkey, Ind. GEORGE W. WILLIAMS.

Starting with Bees in an Attic

What is the best time in the year to start with bees? I have an exceptionally good attic. Would it be as well to keep them there the year round? It would certainly be warmer for them in winter. Would it be too hot in summer?

FRANK F. KINNEY.
Colonial Ridge, Port Chester, N. Y.

(The spring is, perhaps, the best time to start with bees, taking every thing into consideration. It rarely pays for the beginner to start in the fall, for he may lose his colonies the first winter.

There are a good many possibilities connected with hives, and the bees are well protected in the winter. However, it is a little more inconvenient with beekeeping in an attic. You need less expense to work with bees inside a closed room. You can

not see as well unless there are large windows that you can take out entirely; the bees fly out about the room when you are looking over the combs, for instance, and are thereby lost. If the windows are entirely open they finally find their way back into the hives. See reply to M. D. Fraser, p. 196, Mar. 1.—ED.]

Nutriment for Bees in Sawdust

In your reply to Mr. Bohon, page 154, Feb. 15, you say that you do not know whether the bees are deceived by the sawdust, mistaking it for pollen. For my part I can not believe that the bees are deceived, for I have seen them going to a sawdust pile at a saw-mill close by, for the last three springs. They go by the thousands, not only for one day but for weeks at a time. I have actually caught bees on the dust pile and examined the pellets on their legs. It is of a dark-brown color; and when I tasted it, it had a mealy flavor and was just a little sweet. My bees make a practice of carrying this fine sawdust until the maple trees are about through yielding pollen, or until pollen is very plentiful. They do not begin on the sawdust, however, until their store of pollen in the combs is gone.

We know that moth larvae can live on the wood of hives, frames, sections, etc., so it does not look unreasonable to me to suppose that bee larvae may also use the miniature grains of sawdust in like manner.

Cushman, Ark.

GEO. F. GUNTHER.

[While not wishing to take the position that the bees are really deceived, and that there is nothing nutritious in the sawdust, we should like to say, nevertheless, that it is a fact that bees carry honey from their hives in their honey-sacs to use in moistening the pollen for the purpose of packing it in their pollen-baskets. The fact that this dust on their legs tasted sweet, therefore, would not necessarily indicate that the sawdust is nutritious to the young bees.

Different animals subsist on different kinds of food. This is true also of different insects and different larvae, so that the fact that moth larvae burrow through wood would not prove that bee larvae can get nutriment from sawdust. However, we admit that it is hardly likely the bees would work so long and so steadily on the sawdust if they did not find in it a nutritious substance to use instead of natural pollen.—ED.]

Pasting the Edge of the Label Only

There has lately been some difficulty in pasting small labels on tin. I have had fair success with a label about four by five inches that I use on any size of can. I use an ordinary mucilage-brush, and spread the mucilage, or paste, around the edges of the label only, leaving the center dry. Then when the paste dries, the label does not shrink off. I did not use many labels at a time last season. I tried a small bottle of mucilage first. But as that dries up rapidly in Arizona I bought a tube of library paste at a drugstore.

One of your contributors suggested the use of honey to mix with paste. I tried it with both the mucilage and the paste, and found it an improvement. I suppose it prevented the paper from drying and shrinking too quickly.

Hayden, Arizona.

W. H. MCCORMICK.

Ventilating by Raising the Brood-nest and also the Cover from the Super

I have read with interest Mr. Vernon Burt's experience, p. 593, Sept. 1, in raising the brood-nest from the bottom-board to give ventilation and overcome swarming, as I have practiced the same method for several years. I have never been able to get as

low a percentage of swarms, but do know that ventilating in this way goes a long way toward overcoming that difficulty. I go him one better by raising one end of the lid on the supers about $\frac{1}{2}$ inch when the weather is very warm. Contrary to the usual belief, I have never had the slightest trouble in getting the bees to fill out the end or corner sections when the lid was up, and many an evening and morning I have found the bees crowded out and hanging down the side of the supers.

I had three colonies this summer having queens that were so vigorous that they went up into the supers and laid in the sections. The only way I could stop it was to raise the lower super $\frac{1}{2}$ inch at one end. They were ten-frame hives too.

I have never been troubled by the bees building spur comb down to the bottom-board when using the blocks—not even with a hive where I put bricks under the brood-nest to give enough ventilation.

Philipsburg, Pa., Sept. 13. WILLIS N. ZEITLER.

An Easy Way to Hive a Swarm Clustered on a Fence

In the Nov. 15th issue, page 790, the editor says, ". . . but in many cases they seemed to take a particular delight in settling on one of the posts of the wire fence where it was a slow and tedious operation to get them." I would rather remove two swarms from posts than one from a bush. At the beginning of the swarming season, take some old pieces of rope and wind around the posts about three feet from the ground. Pour some melted beeswax on this rope. (Old comb is better, but may spread disease). I use a light skeleton stand about $2\frac{1}{2}$ feet high to set a hive on; and when a swarm settles on a post I place an empty hive on the stand and carry it to the post. To be successful the bottom-board must come in contact with the post. Scrape a handful of bees on to the bottom-board, and the rest will soon follow. Or, give the post a sharp blow with an ax. A man may then return to his work, and in nine cases out of ten the swarm will enter the hive in a few minutes. It requires only two or three minutes to place the hive, and it saves time and stings.

If I could have my choice in hiving swarms I would surely take the fence-post.

Pinckney, Mich., Feb. 6. N. P. MORTENSON.

To Make Increase and Prevent Swarming

The following I find a handy way to make increase, and also to prevent swarming, and get two strong colonies in place of one.

In the swarming season, in the home or outyards I go to colonies that are strong, find the queen and place her and all of the combs with brood and eggs, but one, in an extra super.

Then I take the one frame with brood and eggs, and place it in the old brood-nest; fill it with combs, put in a queen-excluder, set the super with the queen and brood on top. Put in a honey-board; also some warm covering; cover, and let it alone for 12 to 14 days. Then I look for queen-cells; cut them out, and put them into nursery cages, all but two, and then wait until I think they ought to be hatched out. If the two I left are hatched, or show signs of one being hatched and the other destroyed, I again put back the upper super and let it alone for about two weeks.

Then I look for the old queen in the upper super; and if I find her all right I look for eggs and brood in the old brood-nest; and if I find them I set the old queen on to a new stand, and have two good colonies, and always get some surplus and no swarming.

If I do not care for increase I take a frame from my best queen and put it into the brood-nest, and then proceed as described, with the exception of

destroying the old queen and letting the super stay on the old brood-nest.

Vernon, Ct.

J. G. FRENCH.

Your plan is similar to the Alexander plan for making increase in that you conserve the heat of both lots of bees, and thus save all the brood. However, Mr. Alexander gets the old queen in the new hive below on the old stand.—ED.]

1913 Freeze Killed Half the Sage

The indications are good for sage honey but for the freeze of last winter, leaving only half a stand of sage. What there is will probably be good.

Redlands, Cal., Feb. 1.

E. D. BULLOCK.

Feeding Candy in the Ozarks

We are having a warm winter after a very dry summer. Bees in this vicinity went into winter light in stores. I am wintering out of doors in eight-frame dovetailed hives, situated on southern slope, feeding hard candy. Bees are doing well. The prospect for clover is very poor at present.

Morrillville, Mo., Feb. 18. H. CLAY DAY.

Cellar Breeding Not Desired

You call for reports in regard to supplying the bees with artificial pollen so they will breed up in the cellar. The scheme may be feasible, but I should not want to see my bees breed up to such an extent that they get the swarming fever while in their winter repositories.

Mancelona, Mich., Feb. 23. S. D. CHAPMAN.

Aster Honey for Winter Stores all Right so Far

I reported in the fall that my bees had nothing but aster honey to winter on this winter. They had a fine flight yesterday, the 22d, and I never saw a healthier lot of bees. There were but very few dead ones. We have another snowfall this morning—very cold.

R. THOMPSON.

Underwood, Ind., Feb. 28.

Cottonseed Meal a Good Substitute for Pollen

Relying to your editorial, page 121, Feb. 15, I have found cottonseed meal a fine substitute for pollen. If the weather is inclement I put it in an empty comb which I insert in the hive at one side of the brood-nest. If the bees can fly, I put it outside in some place where rain will not fall on it. I put it in a box and place a hive-cover over it, so arranged that the bees can have free access to it.

Mathis, Texas, Feb. 27.

H. D. MURRY.

Sweet Clover Easily Grown in Florida

We have continued planting sweet-clover seed (a few rows in our garden) and it never fails to grow. This is a small effort, yet under some conditions larger quantities could be grown. It grows well here upon saw-palmetto or flat-woods land. We have grown it from seed. We transplanted it, and at this writing it can be found growing spontaneously.

Taft, Fla., Jan. 30.

T. A. WORLEY

Variations in the Same Kind of Honey

I have kept bees in two places. At the first the honey from persimmons was very light in color, with a peculiar flavor which was noticeable as soon as persimmons began to bloom. At the second location, not more than seven or eight miles distant in a bee-line, but in a very different soil, there is none of this honey, although the bees work freely on persimmon.

Arcola, N. C.

R. B. HUNTER.

Our Homes

A. I. Root

And in the morning, rising up a great while before day, he went out, and departed into a solitary place, and there prayed.—**MARK 1:35.**

But thou, when thou prayest, enter into thy closet, and when thou hast shut thy door pray to thy Father which seeth in secret; and thy Father which seeth in secret shall reward thee openly.—**MATT. 6:6.**

There are a good many strange people in this world. There are good people and bad people; and there are others, like you and me, who are good part of the time and bad part of the time; and may God grant, as we grow in years, that the bad times may grow less and less, and the good times grow more and more frequent. Well, there are *selfish* people in this world, and, thank God, there are *unselfish* people. Why, it is a positive fact that there are people who send out gospel literature day after day and year after year, and pay the postage and printing entirely out of their own pocket unless some good man or woman sends a postage stamp or may be a dollar bill. I have known of quite a few such.* In fact, there have been one or two among our beekeepers who have spent a large amount of money, not to send out *political* literature, but to disseminate the pure gospel of Christ Jesus, and that, too, without money and without price. I think one of them is dead and gone.† But there is one who is still alive and doing business, and I rather think he is doing a lot of business too. Every little while he sends me some tracts. I glance over them hastily, and sometimes hand them to those who I think will value them.

Just a few days ago, among these leaflets was one entitled "In the Desert with God," which attracted my attention. This tract also contained a poem headed "Alone with God." I tried to find it afterward, but it had slipped away. But the thought kept coming into my mind and repeating itself—

* If I mistake not, our departed friend and bee-keeper Oliver Foster was one of these quiet home missionaries. If you will refer to page 373, June 1, you will see that he was also one of the most successful beekeepers, years ago, when he and myself were in pretty close touch, not only with the bees, but when we were both interested in the furthering of God's kingdom.

† Among other good friends who are doing so much to further the cause of righteousness I must mention also the Gospel Tract Mission, of Woodburn, Oregon. They send out an elegant calendar with choice selections that face the reader for at least a month. This is a very practical way of combining the practical and spiritual. Besides this they send out large bunches of blotting-pads with scripture texts that remind us almost unconsciously of better things. Drop them a card.

yes, in the night I would say, "Alone with God," and it recalls to me that, during my busy business life, times would come quite often when I felt as if I *must* be just a little while alone with God. Perplexities, misunderstandings, and disappointments must come in a great and growing business, and I can remember vividly that, when my feeble efforts seemed to fail, when some of the help got cross or "cranky," as we sometimes term it, at such times I longed to get entirely away and be alone with God. I sometimes thought of having a private office where I could get off by myself and turn the key. But somehow that did not seem to be Christianlike. I do not know that I have ever yet refused to see or talk with any one. I have often, however, asked the friends after a time to excuse me; but I do not think I ever locked myself in a room, even when I wanted to pray. After the busy throng had all gone home there were particular places or corners where I used to kneel down and feel that I *was* alone with God. I could tell him all my troubles, and a lot of deliverances—I think I may safely say *miraculous* deliverances—came after such times when I had been alone with God.

I do not know how many of you there are who sometimes get stirred up so that it seems almost impossible to take your thoughts away from the thing that troubles you, and think of something else. I sometimes, after a rebellious conflict in my soul, feel like an unmanageable horse. I remember one such time when I was almost boiling over with resentment, and I could *not* get over it. I left my work and plunged into a field of growing corn. I went away out into the middle of the field and knelt down alone with God. I said in substance, "Create in me a clean heart, O God, and renew a right spirit within me." I then went back to my work, as the good book expresses it, "clothed, and in my right mind." I was then enabled, by the grace of God, to look pleasantly and kindly on contrary humanity. Now, such a spirit is catching. No wonder my help *forgot* to be contrary, and seemed to be *transformed*, like myself. This being alone with God had banished Satan, and Christ Jesus was lord and ruler once more.

Well, this little tract reminds me that I have not been alone with God of late as much as I used to be. Let me stop right here. It is an excellent thing to be able to lead in prayer-meeting or other places when

you are called on. We should always be ready to "say grace," or give thanks, whenever we are called on to do so, wherever we happen to be. This praying in public is good and commendable; but I venture to say that every one of us, when so called on, considers what effect his words will have on his *hearers* as well as on the great Father above. In other words, I think most of us are tempted to pray to the people as well as to the great Father who hears and answers prayer. Now, here is the point:

If you get off by yourself (away off in a cornfield), there is no listener *but* God. The conference is between you and your Maker. A man would be silly indeed if he thought he could deceive the all-seeing Eye. If he is never honest and sincere anywhere else he surely must be (unless he is a fool) honest when he is alone with God.

I told you I had *lost* that poem, so I decided to write for another. Inasmuch as our good friend had sent me *one*, and paid the postage, I decided I would send him a stamp. Then something said, "*Two stamps*," but the *Holy Spirit* (I think it was the *Holy Spirit*) said I should send him a dollar to help pay the postage on some tracts to other people. The tract came right along, and a letter with it; but before I give you the letter I am going to give you the first paragraph of that tract that has taken such a hold of me, and the four stanzas of the poem.

IN THE DESERT WITH GOD.

In these days of hurry and bustle we find ourselves face to face with a terrible danger; and it is this—no time to be alone with God. The world in these last days is running fast; we live in what is called "the age of progress," and "you know we must keep pace with the times." So the world says. But this spirit of the world has not confined itself to the world. It is, alas! to be found among the saints of God. And what is the result? The result is—no time to be alone with God; and this is immediately followed by no inclination to be alone with God. And what next! Surely the question does not need an answer. Can there be any condition more deplorable than the condition of a child of God who has no inclination to be alone with his Father?

ALONE WITH GOD.

Alone with him, make him thy confidant;
Tell him each wish thou fain wouldest have him grant:
Oh! tell him every thing that's in thy heart,
Give him the key to every secret part.

Hast thou one thing thou wouldest not have him see,
Hidden from him who gave himself for thee?
Hide it no longer, let it all come out
Free in his presence then without a doubt.

Trust him with every thing thy heart holds dear;
Trust him with every thing of value here;
Believe him; he will keep it safe and sound;
He loves each lamb his tender grace has found.

Alone with him he loves to have thee be,
Whispering softly that he cares for thee;
Here in his presence dost thou love to dwell,
Learning of him what he delights to tell!

I hope, dear friends, you are sufficiently impressed with the above to want to send for it; and I will tell you where to send by giving you the following letter containing another precious poem:

My dear Brother Root:—Your letter of the 18th, with one of the Lord's dollars, came safely to hand, for which we thank you. We sent at once the tract "Alone with God," which you desired. We are glad to have you use any of our tracts in your Home talks as you have in the past, and which has brought many calls for the same. A word from you goes a good way in this.

I am quoting for you now some most precious verses for your spiritual meditation.

Not now, but hereafter.—JOHN 13:7.

Not now, but hereafter shall all things be known,
And all of God's wonderful workings be shown;
All mysteries will fade in the light of that land,
All doubts will be settled, and we understand
Why ill was permitted, why God's ways seem slow.
And the path was so rough that our feet had to go.

Not now, but hereafter all things will be plain,
The sweet and the bitter, the loss and the gain;
In the light of his presence we clearly will trace
What now seems so wrong was but infinite grace;
And how all things here were but working for good;
God's beautiful plan but not now understood.

Not now, but hereafter, when we are like him,
And the scales have been taken from eyes now so dim;
When we view all our journey and scan all our way,
With praise, adoration, and wonder we'll say,
"I see and I know, and I thank him for all,
My precious Redeemer at whose feet I fall."

Swengel, Pa., Oct. 21.

A. F. COWLES.

In regard to the last poem, had I received it in time it would have been a most fitting closing-up for my Home paper for Nov. 1; and I hope my old schoolmate Corwin may see it.

AN OUT-OF-DOORS RELIGION.

We clip the following from *Guide to Nature*:

Christianity is an out-of-doors religion. From the birth in the grotto at Bethlehem (where Joseph and Mary took refuge because there was no room for them in the inn) to the crowning death on the hill of Calvary outside the city wall, all of its important events took place out-of-doors. Except the discourse in the upper chamber at Jerusalem, all of its great words, from the sermon on the mount to the last commission to the disciples, were spoken in the open air. How shall we understand it unless we carry it under the free sky and interpret it in the companionship of nature!—HENRY VAN DYKE, in "Out-of-Doors in the Holy Land."

Not only is Christianity an outdoor religion, but it is an out-into-the-open religion, everywhere and every day in the year. The gospel of Jesus Christ has no secrets. It is all above board, and out in the sunlight. I was once invited to a seance where they had a slate-writing in a tent. They said I would have to stay until midnight to see the modern miracle. I replied, "Why,

my good friend, why not hang your slate right outside of the tent at noon, where the sun can shine on it?" They said it would not work(?) that way. Well, any thing that

will not work and stand the full light of day is a good thing to avoid. The great Master said, "In secret have I done nothing."

Poultry Department

MY "SETTING HEN" STORY, ETC.

In our issue for Jan. 1 I told you something about my flock of about 50 pullets, a cross between the Leghorn and Buttercups; and I have before mentioned that this cross gave us birds of all colors imaginable. Well, the *colors* are not all of it. There are two or three hens in the lot with feathers turned inside out—the curve being outward instead of inward, and, in fact, I don't need "leg-bands," for there are almost no two hens at all alike in the whole 50. And even *this* isn't all of the result of such a cross. Both Leghorns and Buttercups are non-sitters; but when I got here, about Nov. 8, I found two hens that were just determined to sit. In order to get roosters big enough to sell in our market (they won't buy them *here* unless they are close to 3 lbs.), I decided to let both sit as soon as I could get eggs enough. How long did it take to get 15 eggs? *Just four days*; so one hen was set Nov. 12, and before we could spare 15 for the other it was Nov. 17. I tell you this to let you see how my egg yield started in November with pullets, some of them nearly a year old. The 30 eggs, when tested on the third day, were all fertile but one, and the two hens gave me 29 good strong chicks. At this date, Feb. 12, both have weaned their chicks—one 14 and the other 13. Just a word about this excellent fertility.

I have had a notion that the male serves only *the laying hens*—that is, where there are plenty of hens. We have two young roosters with the 50, and one four-year-old full-blood Buttercup, male. I have searched poultry journals and books, but have never seen the matter treated of; but you have all doubtless noticed that, as soon as a hen comes off the nest cackling, there is a rivalry among the males as to who will serve her first. Is this one reason for the cackling? If I am right, it is not at all strange that my eggs in November were almost all fertile. Later I gave one of the Rhode Island Red hens 20 eggs, and she hatched 19 chicks.

Let us now go back to the two sitting hens. Both of their ancestors were non-sitters; and when they did *occasionally* act like sitting, taking away the nest eggs usually cured them. Not so here. I have seen hens *determined* to sit before, but none like one of these. Another hen had been laying

in the nest, so I made a pencil-mark around each egg, and planned to remove all eggs that might be laid in with them. She bit and scratched my hands so badly I bought a cheap pair of cotton gloves; but when my hands were covered she flew in my face and made me look as if I (*A. I. Root*) had been in a *fight*, so I dropped her in a box right under the nest and put my foot over it until I could see if all her eggs were pencil-marked. This did all right for a few times, until, instead of going on the nest when released, she flew in my face again. To head her off, as soon as I removed my foot I slipped out of the nearby barn door and closed it after me. This worked all right for a few days; but she soon demonstrated that a determined young sitting hen is quicker on a run than her 74-year-old "boss." She would slip out of the door before I could get out and close it; and then *chased me half way to the house*.* Was there some *game* blood in the ancestry of the Buttercup or Leghorn that cropped out when I crossed the two? She made a most excellent mother. No cat or dog even *looked* toward her chicks the second time. She and I became excellent friends when we "understood" each other. Let me mention just one more "sport" of these cross-breds.

Some of them have great drooping red combs hiding one eye, like the Spanish and Minorcas; others have Buttercup comb, and still others no comb at all. There is one jet-black pullet, with no comb at all, that has a nest in a square can, "all her own," that has laid *almost* every day since she commenced in November, and she has the most fascinating musical cackle I ever heard. It gives me a "thrill" every time I hear it. It says to me, "Rejoice and be glad," exactly as Pollyanna puts it.

This winter I haven't bought a pound of "chick feed." It costs too much, and there is always a lot of stuff in it the chicks won't eat. I give them "bread and milk" until they are old enough to eat wheat. There is no waste with bread and milk, and I think they grow faster than on any other diet, and this reminds me I want to say a few words more about that divergent poultry ranch. Just recall to mind the granary and feed-

* She didn't go "on foot" when she chased me either—not much!

house is in the center. Four double houses surround the granary, and every flock has a yard running out like the spokes of a wheel. Now, four houses and yards are enough for 50 hens, so there are four more vacant until the chicks begin to hatch, then every hen with her brood has a house (really half a house) all to herself. No big chickens get at their bread and milk; and as they grow she can take them further and further every day out among the palmettos and other underbrush. If a storm comes up she is pretty sure to make for the central shelter. All feeding and egg-gathering, as a rule, is in this central group of houses.

After they had all got located (a rooster with his dozen hens to each yard) I tried opening the gates and letting the adult fowls all run together on Stoddard's colony plan, and it works nicely. At night they all go to their own roosts, and each flock goes away off in its own yard except when they come home for feed and water, and to lay. It is true a few hens have stolen nests out in the underbrush; but Wesley so far has "spotted" them very soon by their cackle, and brought in the eggs for *home use*.

Well, when each hen with her brood has a big yard all to herself she finds quite a lot of bugs and worms, to say nothing of green stuff for her brood. If she *knows* where to get wheat and water every hour in the day she almost cares for herself and brood. Each hen and chicks has a big head of lettuce every morning, and the grown-ups have a heaping bushel in the wire-cloth basket I have described.

I told you that, when we arrived here in November, I got only four or five eggs a day. Well, with all I could do the flock came up very gradually; but now we get close to three dozen every day. Until Feb. 1 we had 40 cts. a dozen; but all at once it seemed "everybody's hens" began to lay, and the price dropped to 25 cts. in about one week.

THE INDIAN RUNNER DUCKS.

Early in November we got one day 17 eggs from 24 ducks; but through December and January they didn't average a dozen, and one or two days only three or four eggs. This is so different from former winters I hardly know how to account for it unless it is true with ducks, as with hens, that small flocks *always* lay better than large numbers. Still, 25 should not be called a large flock.* I gave them mustard liberally from that barrel I told you about, but it does not seem

* Later.—It is now March 3, and the ducks have been doing very well all this February; but duck eggs brought only 20 cts., while hens' eggs were 25 cts.

to work with ducks (at least not *this winter*) as it does with hens. We feed ground bones and meat scraps two or three times a week to all, big and little. Next to this they all seem more fond of lettuce than any thing else, and we are now growing lettuce just for the fowls. It does finely on ground that has once been a "chicken yard," and I believe the chickens' heads are "level" on lettuce. It is God's medicine and food, both together, and good for people as well as chickens.

FLORIDA PESTS; CASSAVA, ETC.

I have been reading this journal for 21 years, and my sympathy is all with Mrs. Root in her efforts to curb your fervor in description of "discoveries" and in following you in your wayward career through life and into the wilds of the west coast of Florida, where I can easily believe the trials imposed by insect pests, if not warded off properly, will induce the same results as they do on this east coast: viz., profanity, disgust, and strong drink. However, if a person will consider the matter calmly, and study the ways of the pests, it is possible to beat them at their own game of torment. For sand flies and mosquitoes, use a bee-smoker. Rotten heart pine is the best fuel. A rotten railroad tie is the stuff. For roaches (common palmetto roach) *Palmodes floridana*, I make traps of tumblers baited with honey. Just grease the inside of the glass. A strip of paper is pasted to the outside from bottom to top, and then put in a dark place, and left alone until it needs to be cleaned and rebaited.

Whitewash with common lime all dark places that are their harbors, and let spiders, lizards, chameleons, and harmless snakes have the privilege of pursuing their prey in and about the premises, and kill all you see.

Poison is dangerous, and not necessary. I can draw on 27 years and 10 months of life spent in southern Florida for experience to prove my theories. I am 54 years of age, a native of New Jersey, and Jack at many trades. I am not much of a gardener, growing some things only for my own use and learning the reason why they have failed in the past to produce any vegetables for home use, except by lucky accidental planting; however, it is not by lucky accidents that I can dig 20 and 30 lbs. of sweet potatoes from one hill and runners, or gather 150 to 250 pods of okra from a single plant. It is soil, season, and knowing how, supplemented by sub-irrigation that naturally is found in low lands bordering rivers and lakes.

If you care to try out my variety of sweet potato I will send you seed and cuttings at any time.

As to the dasheen, I wish to compare it with the sweet potato in quality and quantity.

About your cassava, you will find the roots under ten inches, when grated as horseradish is grated for use, and then made into pudding as rice is used, have something *more* than "chicken feed" in them. The Bahama negroes use it as a staple article of food.

Grant, Fla., Jan. 30.

L. K. SMITH.

In regard to cassava there are many inquiries as to where cuttings can be procured, as I do not find them advertised anywhere. If some Florida friends will undertake to furnish canes for planting, say by parcel post, I will give their names free of charge. We are now getting "rooted cuttings" in a bed in the garden, to be put in the field later, so as to have a perfect stand.

High-pressure Gardening

ANOTHER OF GOD'S GIFTS FROM SOUTH AFRICA —THE SESAME.

Mr. A. J. Root:—As you say that you would like to try some of our sesame, as prepared by our natives, and which we use a good deal, I am sending a small sample of the same. We took some home when we went on furlough three years ago, and it kept all right except that it lost some of its flavor and fragrance, perhaps. I inclose a few of the seeds as they appear after the hulls have been rubbed off, but before they are crushed. The process as the natives prepare the seed is, first, to moisten the seed with water (preferably hot), then rub between the hands until the hull is removed. Then the seeds are slightly roasted in a pan or piece of broken pot. This is the most delicate part of the operation—not to burn them or roast them unevenly. Then they pound them in a wooden mortar to reduce them to meal.

We use this meal on our porridge, oftentimes, with any other dressing, or alone, according to taste. I think it goes especially well with honey.

Referring to our amadumbe as compared with the dasheen, it would seem to me that those who write concerning the dasheen emphasize the need of wet ground more than would seem necessary in case of the amadumbe. While they bear and need a fair amount of water they are often raised with success, and yield an abundant crop, on high ground, such as would be quite suitable for Irish potatoes.

W. L. THOMPSON, M. D.
Mount Silinda, Malsetter, S. Rhodesia, Dec. 6.

The sample of sesame meal came to hand; and if Mrs. Root had not forbidden I should be very much inclined to say "It is the most delicate, delicious, and nourishing food I ever tasted." Peanut butter comes nearest to it; but there is a delightful "fragrance" about it, as friend T. intimates, that is unique. May God be praised for sesame as well as dasheen. I have carefully planted the seeds sent; and if they grow you may expect another "stir" from these parts in regard to "the high cost of living." Our Department of Agriculture had better send our good friend Prof. Young to look it up and have it tried at our Brooksville substation.

SWEET CLOVER—THE SOIL-MAKER.

From *The Ohio Farmer*.

It was springtime in the late nineties when a stranger rode along the winding highways of Kentucky. The blossoms had fallen from the fruit-trees, and the leaves on the forest giants were taking on the deeper green of approaching maturity. The sunshine was soft and warm, and the very air seemed to breathe life and vigor. The stranger's companion—a native of that region—seemed to be the only thing out of harmony that wonderful April day. His face was sad and the wrinkles of care were not hard to discern. Sadly he pointed to the barren gullied hill-sides and said, "This was once a portion of the famous Blue Grass country; but the soil is getting poorer and poorer, for the rains are gradually washing the fertility into the valleys." For a moment he paused; and then, stretching his arm toward the green plants which lined either side of the road, he continued, "Aside from the trees, about the only thing that'll grow up here is this weed!" The stranger looked intently at the growing plants; then, springing from the buggy, he grasped a bunch in his hand

and exclaimed, "Man alive! this is not a weed, it's sweet clover; and to these limestone hills sweet clover means a rebirth of virgin soil!" To-day those hills are no longer eroded and barren, for great fields of this legume are to be seen everywhere; and, moreover, the blue grass is again being established in the wake of the sweet clover.

When the plant is young it is difficult to distinguish from alfalfa; and, in fact, it is a sort of half-brother to alfalfa, for the bacteria on its roots are of the same species as found on the alfalfa roots, and they perform the same function of gathering nitrogen from the air to enrich the soil.

Naturally the question is asked, "If this is true, why not grow alfalfa instead of sweet clover? Alfalfa makes better hay and pasture. It will last for a number of years, and its roots contain more nitrogen. What is the advantage of sweet clover over alfalfa?" The answer is apparent when it is stated that sweet clover will grow on poor worn-out soils on which it would be impossible to establish any other of the clover family. Its seeds thrive on soils of the hardest type where other plant seeds would fail to germinate. It will make a most wonderful growth on soils totally deficient in nitrogen if limestone, phosphorus, and inoculation are present. On a soil of this type, sweet clover will add an enormous supply of nitrogen, for it depends wholly on its supply of this element from the air. It is also an excellent crop when used to pave the way for alfalfa, because, as mentioned before, it carries the same bacteria on its roots.

If one choose a field with a water-table too high for alfalfa or too poor to grow alfalfa, sweet clover is recommended. Although the roots of sweet clover do not grow to such a depth as alfalfa, yet they draw considerable plant food from the subsoil. When they decay they offer a source of drainage; and the soil, when plowed, breaks up fine and friable.

There are many thousand acres in the United States too poor to grow paying crops of corn and alfalfa, which could be profitably sown to sweet clover. While the process of soil restoration is in progress many pounds of honey, wool, mutton, and beef would come from the growing crop. Considerable seed may be obtained from an acre, and it brings a price equal to alfalfa seed. But, above all, its greatest value is as a soil-builder. If turned under it will supply more organic matter, more nitrogen, and at a minimum of cost, than any other known fertilizer or legume.

The magical words "open sesame" swung wide the doors of the great treasure-vault for Ali Baba in one of those charming tales related in Arabian Nights. Surely in our modern times sweet clover is the "open sesame" of soil-building for the American farmer.

Champaign Co., Ohio. TRELL W. YOCUM.

THE "BLACK HAND" DOWN IN JACKSONVILLE, FLA.

We clip the following from the *Times-Union*:

Mrs. Collins found the following Black Hand letter pinned to the door one morning:

"Deer Mis Collins—Unless you put a jar of jam, a bunk of chokolit cake, a apple pie an' a bag of candy down by the old well, we will steel you little boy and keep him, onless you pay us a millyon dollars."

It seems to me the above has the earmarks, not only of the Black Hand, but of somebody who is black all over.

Health

"GOOD HEALTH AND A GOOD BANK ACCOUNT AT ONE STROKE."

I have thought fit to copy the following from the Youngstown *Telegram*, contributed by Ella Wheeler Wilcox, because it hits so completely just what Terry and I have been for years trying to drum into the minds of mankind. It not only hits squarely the high cost of living, but it also hits just as squarely a method of avoiding expensive medicines and doctors' bills.

ONE MAN'S DIET, AND WHAT IT DID FOR HIM; SUCH A MENU CALLS FOR GREAT SELF-DENIAL ON THE PART OF MOST HUMAN BEINGS, BUT IT SAVED THIS MAN FROM THE GRAVE.

In an exchange a man writes an account of how he keeps his family in health and with appetites satisfied on an incredibly small sum of money. Three people live on two dollars a week, and enjoy the best of vigor. There has been no physician called in the last seven years, and the bank account has grown steadily.

The diet prescribed by this man would call for great will power and continual self-denial on the part of most human beings.

It is a curious fact that even those men and women who believe themselves to be quite spiritual in their ideas of life, and who would be horrified to think any one regarded them as carnal or gross in their tastes, are yet unable to eliminate from their diet for any length of time the foods which they know to be injurious (or at least unnecessary to the sustaining of strength and health). A very charming young woman, who is filled with high ideals of life, declared she would rather die and be done with it than force herself to give up her favorite foods and beverages (coffee in particular) in order to benefit her health.

Nevertheless, when a man makes such positive statements regarding the benefits resulting from such a diet, benefits to body and purse, it is worth considering. Let us listen to what he says:

"Here's a well-balanced ration for one day. I eat only a little fruit for my breakfast.

"Breakfast—One apple or banana.

"Dinner—One dish of home-made corn flakes, one dish of boiled wheat cereal, one dish of vegetable salad, two or three slices of whole-wheat bread, one banana.

"Supper—One dish of home-made wheat flakes, one dish of home-made hulled hominy, one baked potato, one dish of fruit salad, whole wheat or grain bread.

"I suppose you will say that sounds monotonous, but I don't eat to gratify discerning and whetted appetite. I eat to be strong and well, and to supply my body with the foods that it really needs.

"Nine years ago I was a wreck—worse than that, two doctors gave me from two to four months to live.

"The food elements needed by the body may be divided into seven classes—protein, starch, sugar, fats, salts, cellulose, and water—and these again into about fifteen different chemical elements, all of which are found in a single kernel of wheat, in just about the correct proportions.

"No other food in the world equals wheat in perfection. I have lived on wheat in various forms, with about 10 per cent of nuts, for weeks at a time.

"I am careful about buying my supplies, so that they will cost me the least money. I have a flaking machine. You can buy one, and make your own flakes at one cent a pound. I buy the corn and wheat for flakes by the bushel, and watch for opportunities to buy the fruits and vegetables at lowest cost. The apples and bananas usually cost me about three cents a pound, and my bananas I always get dead ripe—just turning black, as they are best then.

Notes

"I buy bread one or two days old at the rate of five for ten cents, for nothing would induce me to eat new bread. Cabbage and many other vegetables I eat raw.

"If I sometimes feel that I am not getting enough protein I add raw peanuts when I am making flakes and a little soaked dried fruit, such as figs, raisins, or dates, to make it a little more palatable.

"And all I drink is water—but plenty of it—though never near meal time.

"Now, that is my rule for health, and that is what I eat. What do you say to it? If you could have seen me nine years ago and could see me now you would know that there is something in it, for I am about the healthiest person you ever saw."

While the men and women who are enjoying good health may not feel interested in this menu, it should be clipped and saved, and tried by the many dyspeptics who are paying useless money for patent medicines and feeding doctors with no results.

Poor people who are trying to sustain life on cheap food badly cooked, and who find the food trusts an insurmountable obstacle to economy, could not do better than to give this diet a fair trial for a few months.

Health and a good bank account may result—two great factors in happiness.

This man has a fruit meal for *breakfast* instead of supper, as I do. The dinner is about like mine; and, of course, if he has a fruit breakfast he wants something different for supper. "*No other food in the world can equal wheat.*" Terry and I have come to that conclusion exactly. Can some one tell us about this flake-making machine? Bread two or three days old is what I always call for if I can get it. I also eat raw peanuts occasionally—parched, of course. When fresh fruits are scarce I "go for" the dried or evaporated fruit as you may remember. Drinking water *between* meals is also a very important matter. I heartily agree with the writer where she says you had better clip out the above and paste it up where you can see it often. Now please note the concluding sentence—"killing two birds with one stone" with a vengeance—*good health and a good bank account at one stroke*. Are you not ready to exercise a little self-control as above?

We submitted the above to friend Terry, and he replies as follows:

The "flaking-machine" which Mr. A. I. Root refers to in a recent letter, and which is mentioned in inclosed proof, is made by The Dana Mfg. Co., Cincinnati, Ohio. It is called "The Dana Food-chopper." I bought one several months ago, of the Chicago man referred to by Ella Wheeler Wilcox, for \$1.25. It will "flake" into narrow stringy ribbons wheat which has been soaked for four or five hours until soft clear through. I tried this "flaked wheat" faithfully, both raw and cooked. For cooking we much prefer wheat cracked finely, or granulated, in our hand mill, and it is much less trouble to prepare it.

The Dana is a much better cutter than we have had before, and it is far easier to wash, as there are only two pieces, and they are easy to get at. Ours is No. 20, a small size.

It is possible that this raw flaking-machine wheat is better food than our cooked cracked wheat, but I am doubtful about it, and we like the cracked wheat better. I think it well to be slow about accepting at their face value all the statements in that article.

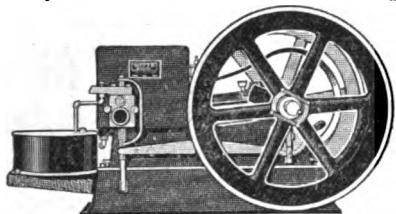
Hudson, Ohio, Nov. 8.

T. B. TERRY.

Now! Let me send you a WITTE Engine to earn its own cost while you pay for it.



DO NOT break your back or waste time doing an engine's work. . Iron and steel are cheaper than muscle; and kerosene oil, cheaper than time. I furnish the power of 10 men's work for 3½c an hour; 30 men's work for less than 80c a day, cost of engine included.



WITTE ENGINES

Kerosene, Gasoline and Gas
Made in sizes 1½, 2, 4, 6, 8, 11, 12, 15, 20, 25, 30 and 40 H.P. Stationary, Portable, Skidded and Sawing Styles. Standard the world over for all shop and farm power uses. Over 27 years ago I made my first engine and gave it my name, and ever since I have kept the active building of every WITTE engine in my own hands. I know every engine I ship, inside and out, and am making lower engine prices than this country has ever seen, while delivering engines that can't be beat.

60 DAYS FREE TRIAL

5-YEAR GUARANTY

Why take chances on a poor, or an unknown engine for any price when the WITTE is so cheap: when it is sold on any easy reasonable payments; and under a stronger money-back guarantee than any manufacturer has ever yet dared to sign?

SEND COUPON for MY BIG OFFER

Let me send you my Free Book, the finest in the whole engine business. Learn the cost of past high prices, and why I can undersell the whole field, and giving unmatched quality. Let me tell you by return mail how easily you can own a WITTE.

Ed. H. Witte, Witte Iron Works Co.

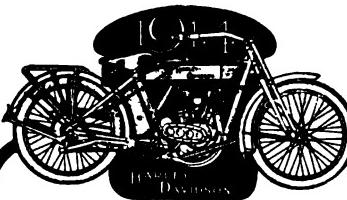
1932 Oakland Avenue, Kansas City, Mo.

Ed. H. Witte, Witte Iron Works Co.
1932 Oakland Avenue, Kansas City, Mo.

Without obligation on my part, send me, by return mail, free, your New Book; and tell me how I can own a WITTE engine so it can earn its own cost while I am paying for it.

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Address _____



The Harley-Davidson Two-Speed WITH STARTER

It's the last word in motorcycles. The two-speeds are selective, and the rider can shift from high to low or low to high or neutral while the machine is standing still or in motion.

The step-starter does away with the necessity of dismounting and placing the machine on the stand to start. The rider may sit in the saddle with both wheels on the ground and give either pedal a downward push, engaging the step-starter and starting the motor.

1914 Catalog on request

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Makers of High-Grade Motorcycles For More
Than Twelve Years
943A Street Milwaukee, Wis.

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Helps his wife to plan her table in busy times. Saves work and worry, saves buying so much meat, gives better satisfaction to the help. A good gardener will be almost impossible in your busy life without proper tools. They cost little and save much hard work.

IRON AGE WHEEL HOES

will sow, cultivate, ridge, furrow, etc., better than you can with old-fashioned tools and ten times quicker. A woman, boy or girl can do it. Can plant closer and work these hand tools while the horses rest. 39 combinations from which to choose at \$2.50 to \$12. One combined tool will do all of the work. Ask your dealer to show them and write us for booklet "Gardening With Modern Tools" and "Iron Age Farm and Garden News", both free.



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A portable, pure white, steady, safe light. Brighter than electricity or acetylene. 100 candlepower. No grease, dirt nor odor. Lighted instantly. Costs 2 cts. per week. Over 200 styles. Every lamp warranted. Agents wanted. Write for catalog. Do not delay.

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Better Spraying

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FREE
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Brown's Auto Spray does its work thoroughly. Actually does banish blight, disease, insects in less time, with less work and less solution. Keeps vines, trees, plants in perfect condition; 40 different sizes and styles.

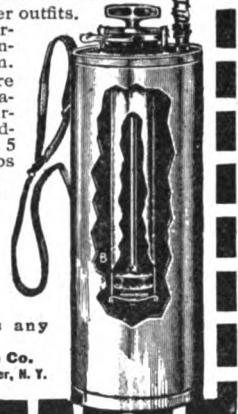
BROWN'S AUTO SPRAYS

Hand and power outfits. 300,000 farmers, orchardists, gardeners now use them.

Spray No. 1, here shown—4 gal. capacity—easily carried over shoulders—suitable for 5 acres of field crops or 1 acre of trees—has Auto Pop Non-clogging nozzle—all kinds of sprays.

Larger sprayers use Brown's Non-Clog Atomic Nozzle. Cannot clog—sprays any solution equally well. Fits any sprayer.

The E. C. Brown Co.
20 Jay St., Rochester, N. Y.



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There will NEVER be enough number one apples—ALWAYS too many older apples. Don't waste your time and your trees growing inferior grades. Use "Scalecide," the one sure spray for San Jose scale, and produce number one fruit. "Scalecide" is 100% efficient against scale and has marked fungicidal properties. Used by best orchardists the world over. Endorsed by Experiment Stations. Our SERVICE DEPARTMENT furnishes everything for the orchard. Write today to Dept. 6, for booklet—"Pratt's Hand-book for Fruit Growers" and "Scalecide the Tree Saver." Both free. B. G. PRATT COMPANY
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With Half the Work

Nine sprays—same nozzle—round or flat—coarse or fine—cover twice the foliage.

"Kant-Klog" Sprayer

Nozzle cleaned while working. Spray starts or stops instantly. 10 styles. Write now for special offer. Agents wanted.

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Double Your Earnings With Chickens

Just send me your name and address for latest copy of Old Trusty Book. Get same ideas that started half a million others making big profits from chickens, ducks, geese and turkeys. Most simple, easy and sure methods.

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takes all the mystery out of hatching successfully. Three or four times more in use than any other. Guaranteed 20 years. 30 to 90 days' trial—freight prepaid to your station. Orders filled same day received. Write Quickly, and learn how to get started the easiest, surest way on the smallest investment. Address

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"Jimmy, Always Give 100 Cents' Worth for Every Dollar You Get"



That's what my father said to me when I was a boy—and that's what I'm doing when I send you my Belle City hatching outfit. 276,000 users will tell you so. I am giving Jim Rohan, Pres. you more, when you compare my

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with any other incubator. Belle City has won Eight World's Championships and thousands have made 100 per cent perfect hatches. Send for my New Book, "Hatching Facts." It tells of big money making opportunities. My low price will surprise you. Write today.

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Sure this year—if well equipped. Enormous demand. Top prices. Get Cyphers Co.'s big Free book. Tells all—244 pages—fully illustrated—pictures, describes

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World's Standard. Learn about Cyphers Co.'s Free Service. Get the Book. Address today—

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Farmers and Fanciers should get the FREE POULTRY BOOK and Catalogue written by ROBERT ESSERY, well known throughout America. After 25 Years With Poultry. It tells How to Make Money From Eggs Show, contains Pictures of 20 Poultry Houses, tells cost to build, describes AMERICA'S LARGEST LINE OF INCUBATORS AND BROODERS—\$2.25 to \$4.25 each. Write today.

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and calendar of pure-bred poultry for 1914. Large, many pages of poultry facts, different breeds in natural colors. 70 varieties illustrated and described; incubators and brooders; low price of stock and eggs for hatching. A perfect guide to all poultry-raisers. Send 10c for this noted book.

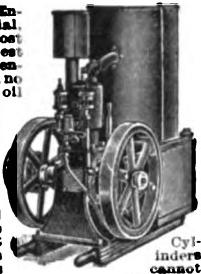
B. M. GREIDER, Box 80, Rutherford, Pa.

Use KEROSENE Engine Free!

Amazing "DETROIT" Kerosene Engine shipped on 15 days' FREE Trial. Proves kerosene cheapest, safest, most powerful fuel. If satisfied, pay lowest price ever given on reliable farm engine; if not, pay nothing. No waste, no evaporation, no explosion from coal oil.

Gasoline. GOING UP!

Gasoline is to to 150 higher than coal oil, and still going up. Two pints of coal oil do work of three pints gasoline.



Cylinders cannot carbonize

AMAZING "DETROIT"

—only engine running on coal oil successfully; uses alcohol gasoline and benzine, too. Starts without cranking. Only three moving parts —no cams—no sprockets—no gears —no valves—the utmost in simplicity, power and strength. Mounted on skids. All sizes, 2 to 20 h.p. in stock ready to ship. Engine tested before crating. Comes all ready to run. Pumps, saws, threshers, churns, separates milk, grinds feed, shells corn, runs home electric lighting plant. Price (stripped) \$39.50 per rod. Sent any place on 15 days' Free Trial. Don't buy an engine till you investigate money-saving, power-saving "DETROIT." Thousands in use. Costs only postal to find out. If you are first in your neighborhood to write, you get Special Extra Low Introductory price. Write (138)

Detroit Engine Works, 373 Bellevue Ave., Detroit, Mich.

BUY YOUR FURNACE \$10 DOWN \$10 A MONTH



Our monthly payment plan of selling direct saves you the dealer's profits and charges for installation. The

Jahant Furnace

with the patented "Down Draft System" is best for residences, schools, hotels, churches, etc., because it delivers plenty of heat—cheaper and whenever desired at a saving of 1-3 to 1-2 in fuel bills. Install the Jahant yourself. We send complete outfit freight prepaid with special plans, detailed instructions and all necessary tools for installation. Satisfaction guaranteed or money refunded.

Write for free illustrated book.

THE JAHANT HEATING CO.

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Save $\frac{1}{3}$ to $\frac{1}{2}$ on Fuel Bills

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FREE BARGAIN BOOK

Save 30 percent buying direct from factory on 60 days' trial with money-back guarantee. Our FREE CATALOG proves it.

MASON FENCE CO., Box 88 Leesburg, O.

FARM FENCE FROM FACTORY TO FARMER

Made of OPEN HEARTH STEEL WIRE. Proven by tests to be the most durable wire produced. Heavily Galvanized with PURE ZINC. Sixty different styles and heights, each a satisfying-quality fence.

WE SELL DIRECT TO THE FARMER AT DEALER'S PRICES.

Be your own merchant and put the Dealer's Profit in your own pocket where it belongs. The following are a few of our big values:

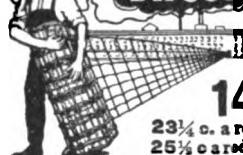
26-inch Hog Fence, - - 14c. per rod.
41-inch Farm Fence, - - 21c. per rod.
48-inch Poultry Fence, - - 22 $\frac{1}{4}$ c. per rod.
Special Barbed Wire, \$1.40 per 80-rod Spool.

Sold on 30 DAYS FREE TRIAL. Get in with the shrewd buyers by sending for our big free Catalogue. It's full of fence bargains. Write for it today.

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Box 101 Winchester, Indiana

KITSELMAN FENCE

Get It From
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We make you the same price we would make the Dealer or Jobber. That is why we can save you money. Look at these very low prices.

14 CENTS A ROD
for 26-in. hog fence
23 $\frac{1}{4}$ c. a rod for 49-in. farm fence
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Barbed Wire. Large free Catalog showing 100 styles of Farm, Poultry and Lawn Fence.

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**KEROSENE
ENGINE**

"The Masterpiece of the Largest Makers of Two-Cycle Engines in the World"

Every time you hitch a Bessemer Kerosene Engine to a load, YOU KNOW IT WILL PULL IT.

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There's no guesswork, no uncertainty—the Bessemer goes when you start it, and goes till you stop it. It will run on less fuel because the wonderful Bessemer Universal Fuel Feeder automatically feeds the right amount to carry the load—no waste.

Two-Cycle, with only 3 moving parts—runs on kerosene, distillate, etc.—the greatest little worker in the world. 2 to 350 H.P. 30 days free trial. Immediate shipment. Fuel and crude oil engines up to 165 H.P.

132 Lincoln Ave. GROVE CITY, PA.

The Bessemer Gas Engine Co.

BEST FOR BUZZSAWS

Pays for itself in fuel saved





GROW BIG, LUSCIOUS STRAWBERRIES

You can raise large crops of delicious berries from a small piece of ground if you start right—with hardy, prolific, carefully grown plants selected from **ALLEN'S TRUE-TO-NAME VARIETIES**

All standard early and late strains for every soil and climate requirement. **WRITE FOR 1914 BERRY BOOK.** Allen's Berry Book is full of valuable information on how to grow berries and small fruits profitably. It lists and describes Strawberries, Blackberries, Raspberries, Grapes, Currants, Asparagus, etc. Copy sent FREE upon request.

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BEST IN THE WORLD

Prices Below All Others



I will give a lot of new sorts free with every order I fill. Buy and test. Return if not O. K.—money refunded.

Big Catalog FREE

Over 700 illustrations of vegetables and flowers. Send yours and your neighbors' addresses.

R. H. SHUMWAY, Rockford, Illinois

10 Days' Free Trial

for you to prove that all kinds of meal, cereals or corn, can be ground the fastest and finest on

QUAKER CITY MILLS

We pay the freight. 25 styles—hand power to 50 h. p. Write for catalogue, also for barns in farm supplies. The A. W. Straub Co., Sept. R, 2749-50 Filbert St., Philadelphia, Pa. Sept. 6, 3783-11 So. Ashland Ave., Chicago, Ill.



850,000 GRAPE VINES

60 varieties. Also Small Fruits, Trees, etc. Best rooted stock. Genuine, cheap. 2 sample vines—10c. Descriptive price list free. Lewis Reesch, Box K, Fredonia, N. Y.



40 ACRES solid to Superb, Progressive, American and other best everbearers. Get acquainted offer for testing. Send us 10c for mailing expense, and we will send you 6 high quality everbearing plants (worth \$1) and guarantee them to fruit all summer and fall, or money refunded. Catalogue with history **FREE** if you write today.

THE GARDNER NURSERY CO.
Box 130
OSAGE, IOWA

Hill's Evergreens Grow

Best for windbreaks. Protect crops and stock.

Keep house and barn warmer—save fuel—save feed.

Hill's evergreens are hardy, nursery-grown—low priced. Get Hill's free illustrated evergreen book and list of Great Bargain Offers—from \$4.50 up per Thousand. 56 years experience. World's largest growers. Write.

HILL NURSERY CO., Inc. Evergreen Specialists.



SARFF'S

SEED CORN

5000 bushel crop 1912 Tested and sure to grow. Finest quality. 20 leading varieties. Also Seed Oats, Barley, Grass Seed, Potatoes, etc.

Samples on application, 1100 acres. Be sure to get our new catalog. Write today.

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The Name Burpee

of the choicest vegetables and most beautiful flowers? If so, it may prove of mutual interest if you write to-day (a postal card will do) for **The New Burpee Annual.** This is a bright book of 182 pages that is intensely interesting to every one who gardens either for pleasure or profit. Shall we mail you a copy? If so, what is your address? Our address is, **W. ATLEE BURPEE & CO., Philadelphia**

is known the world over as synonymous with **The Best Seeds That Grow!** Are You willing to pay a fair price for selected seeds

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Save \$25.00 to \$40.00 On Every Buggy You Buy

I say you can. You can do it by buying from me direct. 200,000 men all over America have bought my buggies direct. Scores of them right in your own section no doubt.



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Phelps Split Hickory Buggies are made of tough, sinewy Second-Growth Hickory—split, not sawed. Strongest made buggies on earth. And sold direct to you by me. I save you the big money the traveling salesmen, middlemen, retailers add to the manufacturing cost—the actual value of the buggy.

Write today for your copy of the Free Book.

H. C. PHELPS, Pres., The Ohio Carriage Mfg. Co.
Station 293



THALE'S REGULATIVE VACUUM BEE-FEEDER

THIS ILLUSTRATION shows the special designed bottle which controls the feed on Thale's Regulative Vacuum Bee-Feeder. This feeder is designed under the latest scientific method of controlling the feed by means of Vacuum and keeping the feed at a certain level, and in reach of the bees at all times. The slide is the means of increasing or decreasing the amount of feed. (See March 1st issue.) This feeder is manufactured by the most skillful workmen, and its construction is perfect. Over 25,000 of these feeders were sold in January, and some of those who have received them have re-ordered more, and have expressed their opinion that this feeder will unquestionably be the most profitable investment for the beekeepers. The Chicago-Northwestern Beekeepers' Association which was held in Chicago Dec. 17-18, 1913, to whom I have described and demonstrated this feeder in detail and in use, gives the following endorsement:

WHEREAS, This Convention has been impressed by the exhibit of the Thale Regulative Vacuum Bee-Feeder, and believe that the same is a good device for stimulative feeding—

THEREFORE, Be it resolved that the Chicago-Northwestern Beekeepers' Association in convention assembled, do heartily endorse the above device as a practical instrument for the beekeeper at large.

I. E. PYLES,
Signed { ARTHUR STANLEY,
W. B. BLUME.

I want over 100,000 of these feeders in use by June 1. I will ship you as many feeders as you need on ten days' free trial in your own apiary, and if these feeders do not work as represented you may return them to me at my expense, and your money will be refunded. If no money is sent, fill in and cut out Free Trial offer below and mail to me at once. Address Free Trial Dept., G 194.

Send for feeder circular and bee-supply catalog. I carry a full line of Lewis Beeware and Dadant's Foundation. One of my Vacuum Bee Feeders complete with two bottles FREE with every ten-dollar order. Send me a list of your wants—it is no trouble to answer letters.

TERMS, CASH WITH ORDER

Sample Feeder, with 2 bottles complete, mail postpaid.
Ten Feeders, complete with 1 bottle, freight or exp., each.
All orders over ten feeders, each, only
Extra bottles with cork valve, each



55c
35c
30c
10c

H. H. THALE, INVENTOR AND MANUFACTURER Box C25, MAYWOOD, MISSOURI

Eastern Buyers Send Orders to Earl M. Nichols, Lyonsville, Mass., and B. H. Masters, Edison, Ohio

TEN DAYS' FREE TRIAL OFFER

Please send by Freight: Parcel Post (send postage) Express
Postoffice R. R. Station State
Send at once (number of feeders) feeders on ten days' free trial. Title of feeders to remain with
H. H. THALE, of MAYWOOD, MO., until payment in full is made or feeders returned.
How many colonies have you? Annual crop lbs.
Produce comb or extracted? Sign.....

LISTERINE

Use it every day

LISTERINE is an agreeable antiseptic mouth-wash that keeps the teeth and gums sweet and healthful and neutralizes breath odors. Listerine is as necessary for the complete toilet of the mouth as the toothwash.

All Druggists Sell Listerine.

LAMBERT PHARMACAL COMPANY, St. Louis, Mo.



Queens and Bees

We are now booking orders for our celebrated Leather-colored and Golden Italian Queens. Bees in $\frac{1}{2}$, 1, and 2 lb. packages. Nuclei in 1, 2, 3, or 5 frame, either on Danz. or Hoffman frames. Full colonies in 8 or 10 frame L. hives or Danz. 10-frame hives. Write at once for special card of prices, and book your order with us early.

Letter of endorsement to us from The A. I. Root Co.:

Medina, Ohio, Feb. 6, 1914.

The Penn Co., Penn, Miss.:

Replying to yours of Feb. 3, we would state that we have bought a large number of queens of you. We have found them uniformly marked, and of a good stock; in fact, they are first-class in every respect. Another thing, we have always found that you make prompt deliveries, or give us notice promptly when such deliveries could not be made.

THE A. I. ROOT CO.,
by E. R. Root, Vice-president.

Get our prices at once. . . . The largest queen and bee yards in the South.

The Penn Co., Penn, Mississippi

Three - banded Italian Bees and Queens!

Guaranteed safe arrival and satisfaction. Untested queens, 75 cts. each; \$7.50 per dozen. Tested, \$1.50. Choice breeders, \$5.00. Nuclei, \$1.25 per frame, good supply of bees. Half pound bees with queen, \$2.00. One pound bees with queen, \$3.00, full weight. Full colony in eight-frame hive with queen, \$6.50; in ten-frame, \$7.50. Best mail and express service in the South. Only 12 hours to St. Louis, Mo.

THE STOVER APIARIES, MAYHEW, MISSISSIPPI



BUY CARNIOLANS IN CARNIOLA

Pure Carniolan Alpine bees. Write in English for booklet and Price list. . . Awarded 60 honors.

JOHANN STRGAR, . . Wittnach
P. O. Wocheinor Feistritz, Upper
Carniola (Krain), Austria

GOLDEN ITALIAN Queens

Reared from straight five-band mothers, mated with select golden drones, $\frac{3}{4}$ miles from three-band apiary. These queens are large, vigorous, and prolific; the bees gentle and hustlers, and are noted throughout the U. S. as a disease-resisting strain. Purity of mating, safe arrival, and satisfaction guaranteed.

QUEENS	May 1st to June 1st			June 1st to July 1st			July 1st to Nov. 1st		
	1	6	12	1	6	12	1	6	12
Untested	\$ 1.25	\$ 6.50	\$11.50	\$ 1.00	\$ 5.00	\$ 9.00	\$.75	\$ 4.00	\$ 7.50
Select Untested	1.50	7.50	18.50	1.25	6.50	19.00	1.00	5.00	9.00
Tested	2.00	10.50	18.50	1.75	9.00	17.00	1.50	8.00	15.00
Select Tested	2.75	15.00	27.00	9.50	19.50	25.00	2.00	10.00	18.00

Breeders, \$5.00 to \$10.00.

Queens for export will be carefully packed in long-distance cages, but safe arrival is not guaranteed.

BEN G. DAVIS,

SPRING HILL,

TENNESSEE

Marchant's Island Bred Queens

Bred from selected mothers, and mated to isolated drones of a different strain. My aim is quality and not quantity. So if you want any of these choice purely mated three-banded Italian queens order now or you may not get them as I am going to rear only a limited number. No disease, and your money back if not satisfied. The A. I. Root Co. use my queens, which is proof of their quality.

No need to write for lower prices.

Reference, The American Exchange Bank of this city.

Prices—Untested, single, \$1.50; 6 for \$6.00; 12 for \$10.00; in lots of 25 or more, 75 cts. each. Select tested, \$8.00. Breeders, \$5.00 and \$10.00.

A. B. MARCHANT, . . . APALACHICOLA, FLORIDA

Queens from Caraway's Prize-winning Stock. . . .

Ready for Shipment
after March 20 . . .

Book your early orders now! Send cash when you want the queens. Prices of tested queens till May 1: One for \$1.25, six for \$6.00; untested, before May 1, one for \$1.00, six for \$8.00; breeding queens, \$3.00 each. I will breed the Goldens also this season; can send Goldens after April 15 at same prices as the three-banded Italians. . . . Entire satisfaction guaranteed on every queen purchased from me.

D. M. CARAWAY, . . . MATHIS, TEXAS
Queen-Breeder

This is the season for discounts on Bees and Bee Supplies

If you will send us a list of goods needed we will be pleased to quote you on them. Catalog free.

I. J. STRINGHAM, 105 PARK PLACE, NEW YORK
Apriaries, Glen Cove, L. I.

The ABC of Bee Culture

The only cyclopedia on bees, 712 pages, fully illustrated. Every phase of the subject fully treated by experts. Price \$2.00 postpaid; money refunded if unsatisfactory.

THE A. I. ROOT CO., MEDINA, OHIO.

Classified Advertisements

Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the Classified Columns or we will not be responsible for errors.

HONEY AND WAX FOR SALE

See our special sale of honey on advertising page 18 of this issue. THE A. I. ROOT CO., Medina, O.

FOR SALE.—Choice extracted honey in new 60-lb. cans at 9 cts. per lb. J. P. MOORE, Morgan, Ky.

FOR SALE.—Finest quality buckwheat honey in cans and kegs. Clover honey all sold. C. J. BALDRIDGE, Kendalia, N. Y.

FOR SALE.—Aster, goldenrod, yellow-top honey blends, fine quality, 5½ cts. per lb. JOHN C. WEAVER, Cochrane, Ala.

FOR SALE.—No. 1 buckwheat comb, \$8.00 per case, 24 sections to case. JOSEPH M. ELSBREE, Waverly, N. Y.

FOR SALE.—No. 1 white comb, \$8.50 per case; No. 2, \$8.20; in 4 x 5 sections, 24 lbs. to case. WILEY A. LATSHAWE, Carlisle, Ind.

FOR SALE.—No. 1 white comb honey; \$8.00 per case 24 sections; 120 lbs. amber extracted honey at 6 cts. per lb. H. J. AVERY, Katonah, N. Y.

FOR SALE.—White-clover honey, none better. In 10-lb. pails, six in a case, at \$6.50 per case; 5-lb. pails, 12 in a case, at \$7.00 per case; ½-lb. glass jars, 24 in a case, at \$2.80 per case. Sample, 4 cts. Also in 60-lb. cans, very nice amber honey. HENRY STEWART, Prophetstown, Ill.

FOR SALE.—Blended raspberry, buckwheat, and goldenrod honey; has a thick body and a strong and very rich flavor. Put up for sale in new 60-lb. tin cans. Price, \$6.00 a can. Sample by mail, 10 cts., which may be applied on an order for honey. ELMER HUTCHINSON, Pioneer, Mich.

FOR SALE.—No. 1 white comb, \$8.25 per case; No. 2 white, \$2.75; No. 1 fall comb, \$2.75 per case; No. 2 fall, \$2.50 per case. All cases have 24 sections to case, and six cases to carrier. Amber extracted, 8 cts. QUILIN-THE-QUEEN-BREEDER, Bellevue, O.

HONEY AND WAX WANTED

WANTED.—Comb, extracted honey, and beeswax. R. A. BURNETT & CO., 178 So. Water St., Chicago.

WANTED.—Comb honey and beeswax. State what you have and price. J. E. HARRIS, Morristown, Tenn.

WANTED.—Beeswax; best market price paid. Write to C. O. REINKING CO., South Bend, Ind.

WANTED.—Honey, extracted and comb. Will buy or handle on commission. Beeswax—will pay highest price. HILDEBOTH & SEGBELKEN, New York, N. Y.

FOR SALE

For bees, queens, or material—typewriters, violin, printing-press, write E. C. BIRD, Boulder, Col.

FOR SALE.—A full line of Root's goods at Root's prices. A. L. HEALY, Mayaguez, Porto Rico.

FOR SALE.—Full line of Root's goods at factory prices. E. M. DUNKEL, Osceola Mills, Pa.

Beekeepers, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap. WHITE MFG. CO., Greenville, Texas.

New crop of extra-fine quality alfalfa seed, \$6.50 per bushel; sacks, 25 cts. extra; also some sweet-clover seed. R. L. SNODGRASS, Augusta, Kan.

FOR SALE.—Empty second-hand cans, two cans to the case; good as new; 25 cts. per case. C. H. W. WEBER & CO., Cincinnati, Ohio.

Dashen seed \$4.00 bushel, f. o. b. Ten lbs. \$1.00 prepaid. THOS. PORTERUS & SONS, Rt. 3, Box 126, Tampa, Fla.

FOR SALE.—Better hive for less money. Beekeepers' supplies and standard-bred Italian bees. Write for catalog. A. E. BURDICK, Sunnyside, Wash.

The best of bee goods for the least money. Send for new catalog. Satisfaction guaranteed or money refunded. H. S. DUBY & SON, St. Anne, Ill.

FOR SALE.—Root's goods and Dadant's foundation at factory prices. SPENCER ARIARIES, Nordhoff, Cal.

FOR SALE.—500 lbs. yellow biennial sweet-clover seed at \$14.00 per bushel of 60 lbs., hulled seed. R. L. SNODGRASS, Harrisburg, Ool.

FOR SALE.—Root's goods at factory prices. Fresh stock and prompt, accurate service. Let's get acquainted. L. W. CROVATT, box 184, Savannah, Ga.

FOR SALE.—20 cts. each; 75 T-tin honey-supers for ten-frame Langstroth hive; use 4¼ x 4¼ x 1¼ or 1½ plain sections. G. M. L. FERRIS, Atwater, N. Y.

FOR SALE.—Plain section supers, fences, and holders, nailed and painted, cheap. W. W. LAWRENCE, Centerville, Tex.

FOR SALE.—75 one-story complete Langstroth 10-frame hives, nailed and painted, in good shape; \$37.50 for lot. PHIL B. REED, Care of S. O. CO., Taft, Cal.

We are among the largest growers of alsike clover in this country, and offer good clean seed. Bushel, \$11.00; half bushel, \$5.75; peck, \$8.00. C. J. BALDRIDGE, Homestead Farm, Kendalia, N. Y.

FOR SALE.—15 dovetailed bodies with new Hoffman frames, 10 extracting supers with new frames, 17 comb-honey supers, 4¼ x 4¼ x 1¼ plain, 10 lids, 10 bottoms, 10 excluders, all eight-frame. \$20 for the lot. ROBERT SHOEMAKER, Rt. 3, Swedesboro, N.J.

FOR SALE.—The Weaver automatic honey-extractor. It reverses at full speed; is simple and positive; saves 50 per cent of labor and at the same time increases the output 50 per cent. A four-frame will do the work of an 8. Every one in the market for an extractor, send for particulars. WEAVER BROS., Richmond and Falmouth, Ky.

The Beekeepers' Review Clubbing List: The Review and Gleanings one year, \$1.50. The Review and American Bee Journal one year, \$1.50. All three for one year only \$2.00. Dealers or those wanting to buy honey kindly ask for a late number of the Review having a list of 100 producers having honey for sale. Address

THE BEEKEEPERS' REVIEW, Northstar, Mich.

The National Beekeepers' Association now buys supplies for their members. Send us your order, enclosing the same money you have to pay others, and we will buy them for you on the co-operative plan. If not a member we reserve the right to retain \$1.50 from the profits on your first order to pay your membership dues and subscription to the Review one year. Sample copy of the Review free. Address NATIONAL BEEKEEPERS' ASSOCIATION, Northstar, Michigan.

WANTS AND EXCHANGES

WANTED.—Good farm from owner only. State price and particulars. TARPEY, Box 754, Chicago.

WANTED.—250 colonies of bees, from a location free from disease. BOX 3770, GLEANINGS, Medina, O.

Will buy bees. Myself examine, pack, and ship. Write F. A. ALLEN, Philiburg, Quebec.

WANTED.—Bees in lots of 25 to 300 colonies, preferably within 250 miles of Detroit, Mich. A. W. SMITH, Birmingham, Mich.

WANTED.—100 colonies of bees in lots of 25 or more. J. VAN WYNGARDEN, 10829 Wabash Ave., Chicago.

WANTED.—To exchange dovetailed hives (new), two-frame extractor, and other supplies for honey. STANLEY INGALLS, Rt. 2, Lenox, Taylor Co., Iowa.

WANTED.—To exchange White Orpingtons for bees and supplies. GEORGE RHEINFRANK, West Chicago, Ill.

WANTED.—To exchange bass-viol and standard frames cheap for extracted honey and wax. G. C. THRASHER, Lequin, Pa.

WANTED.—To furnish every beekeeper within 500 miles of Boise, Idaho, with the best and cheapest bee supplies on the market, *quality considered*. Send me your order or a list of your requirements for 1914. Our catalog and price list will be mailed to you free. Order early and get the discounts. C. E. SHRIEVER, Boise, Idaho.

REAL ESTATE

For Sale at a Bargain, good improved $\frac{1}{4}$ or $\frac{1}{2}$ section farm near Bisbee and Douglas, Ariz. Best climate and best markets in the United States. Address the owner 423 So. 5th Ave., Tucson, Ariz. 64947

Virginia fertile farms, \$15 an acre up. Easy pavements. Send names of two friends interested in Virginia, and receive our beautiful magazine one year free. F. H. LABAUME, Agr'l Agt. Norfolk & Western Ry., Room 246, N. & W. Bldg., Roanoke, Va.

FOR SALE.—120 acres of good land right where the clover, raspberry, and basswood grow, and 240 colonies of good bees, and all of the extra fixtures for running three apiaries for extracted honey. Will sell cheap. Write for price. E. S. FROST, Rt. 3, St. Louis, Mich.

Men of ambition prosper in the Southeast. Small capital with energy will accomplish wonderful results. Dairy, stock, fruit, or poultry will make you independent. Land sells from \$15 an acre up. Growing season from 7 to 10 months' duration. Modern schools, good highways and churches. "The Southern Field" Magazine and farm lists on request. M. V. RICHARDS, Land and Industrial Agent, Room 27, Southern Railway, Washington, D. C.

BEES AND QUEENS

Phelps' Golden Italian Queens will please you. C. W. PHELPS & SON, 3 Wilcox St., Binghamton, N. Y.

Pure Italian bees or their hybrids, in L. 10 frames, wired, full foundation, 1 or 100. JOS. WALRATH, Antioch, Cal.

FOR SALE.—150 colonies or carloads of Italian bees in ten-frame Langstroth hives, in Missouri. Address R. F. HOLTERMANN, Brantford, Ont., Can.

Golden-yellow Italian queens my specialty. Untested, \$1.00; tested, \$1.50. Ready April 1. Safe arrival guaranteed. E. A. SIMMONS, Greenville, Ala.

FOR SALE.—50 to 200 colonies, eight-frame, first-class. E. F. ATWATER, Meridian, Idaho.

Phelps' Golden Italian Bees are hustlers. C. W. PHELPS & SON, 3 Wilcox St., Binghamton, N. Y.

FOR SALE.—200 colonies of Italian bees at \$5.00 per colony. G. H. ADAMS, Spring and Central Ave., Troy, N. Y.

FOR SALE.—40 colonies Italian bees in 8-frame hives, \$200. Will not sell less than whole lot. S. V. REEVES, Haddonfield, N. J.

I am breeding a few choice tested and untested queens for March and April delivery. Moore stock now. Better write at once.

EDW. G. BALDWIN, DeLand, Fla.

My queens are bred from imported mother. For gentleness and honey-gathering they are unexcelled. Untested, 1, 75 cts.; 6, \$4.25; 12, \$8.00. Safe arrival. Address W. J. FOREHAND, Ft. Deposit, Ala.

FOR SALE.—Golden Italian queens that produce golden bees; for gentleness and honey-gathering they are equal to any. Every queen guaranteed. Price \$1.00; 6 for \$5.00. WM. S. BARNETT, Barnett's, Va.

Italian bees in pound packages and on comb our specialty; 30-page catalog giving beginners' outfit free; also queens.

THE DERROY TAYLOR CO., Lyons, N. Y.

1914 QUEENS.—Moore's strain of leather-colored Italians in April at 75 cts. Also bees by the pound, nuclei, tested queens. Write for prices on nuclei. Address OGDEN BEE AND HONEY CO., Ogden, Utah.

Queens ready in May. J. E. Hand strain of three-band Italian, bred for gentle honey-gathering, and wintering. Write for price list and free booklet, "How to Transfer, Get Honey and Increase." J. M. GINGERICH, Arthur, Ill.

Save those queenless colonies by ordering a tested three-banded Italian queen. One for \$1.25; six for \$6.00. These queens are guaranteed to please you, or your money refunded.

B. M. CARAWAY, Mathis, Texas.

FOR SALE.—50 full colonies pure Italian bees in eight-frame dovetailed hives with Hoffman frames at \$6.00 each. All queens last-year Moore. Hives in good condition, painted. No disease.

F. A. GRAY, Redwood Falls, Minn.

Queens and Bees for Sale.—See our large advertisement elsewhere in this journal, and read The A. I. Root Co. letter to us regarding our queens. Write at once for large bee and queen circular.

THE PENN CO., Penn, Miss.

FOR SALE.—Italian queens, bees by pound. Descriptive list free. Apiaries under State inspection. Leaflets, "How to Introduce Queens," 15 cts.; "How to Increase," 15 cts.; both 25 cts. E. E. MOTT, Glenwood, Mich.

Phelps' Golden Italian Queens combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; six, \$5.00; tested, \$8.00; breeders, \$5.00 and \$10.00. C. W. PHELPS & SON, 3 Wilcox St., Binghamton, N. Y.

Golden and three-banded Italian and Carniolan queens ready to ship after April 1. Tested, \$1.00; 6 to 6, 95 cts. each; 6 to 12 or more, 90 cts. each. Untested, 75 cts. each; 3 to 6, 70 cts.; 6 or more, 65 cts. each. Bees per lb., \$1.50; nuclei per frame, \$1.50. C. B. BANKSTON, Buffalo, Leon Co., Tex.

FOR SALE.—Several yards of bees on five years' time and easy terms of payment. No disease, and best of locations. All we ask is that you help us work these bees for several months this year to show your ability to manage them. Further particulars on request. SPENCER APIARIES CO., Nordhoff, Cal.

Golden Italian queens that produce golden bees, the brightest kind, gentle, and as good honey-gatherers as can be found. Each, \$1.00; six, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.

J. B. BROCKWELL, Barnett's, Va.

Try Forehand's three-band Italian queens. They are raised from imported stock, unexcelled for honey and gentleness. One untested, 75 cts.; 6, \$4.25; 12, \$8.00. Send me your order; and if not satisfied I will return money. Safe arrival.

N. FOREHAND, Rt. 2, Brewton, Ala.

We requeen our bees every year with best Italian stock to prevent swarming. We offer the one-year-old queens removed from these hives at 50 cts. each; \$5.40 per doz.; \$40 per 100. Delivery guaranteed. Book orders now. Nuclei, any quantity, 2 frames, \$1.50; 3 frames, \$2.00. Add price of above queens wanted. SPENCER APIARIES Co., Nordhoff, Cal.

Queens bred from Moore's and Doolittle's best Italian stock; untested, 60 cts. each; \$6.60 per doz.; \$50.00 per 100. Tested, 90 cts. each, \$10.20 per doz.; \$80.00 per 100. Delivery guaranteed. Book orders now. Nuclei, any quantity, two-frame, \$1.50; three-frame, \$2.00. Add price of above queens wanted. SPENCER APIARIES Co., Nordhoff, Cal.

Goldens and three-band Italians, ready March 1. They have been bred for three points—prolificness, gentleness, and honey-gathering qualities. Select untested, each, 75 cts.; 6, \$4.25; 12, \$8.25; 50, \$32.50; 100, \$60.00. Tested, \$1.50; select tested, \$2.00; three-banded breeders, \$4.00; golden breeders, \$5.00. GARDEN CITY APIARY Co., Rt. 3, Box 86, San Jose, Cal.

FOR SALE.—California Italian queens, Goldens and Three-banders by return mail after March 15: select untested, 75 cts.; 12, \$8.00; tested, \$1.00; breeders, \$8.00. Bees by the pound a specialty, ready April 1; 1 lb., \$1.25; 2 lbs., \$2.25; large lots, less. Booking orders now. Deliveries and satisfaction guaranteed. Correspondence solicited. Circular free. J. E. WING, 155 Schiele Ave., San Jose, Cal.

Good QUEENS.—Good queens are a real necessity in any apiary if best results are to be expected. The old leather-colored three-band Italians have proven themselves to be the best general-purpose bee extant. These I can supply in any quantity you may wish. Untested, \$1.00 each; \$4.25 for six; \$8.00 per doz. Safe arrival and satisfaction. All orders will have prompt attention.

E. J. ATCHLEY, Bloomington, Cal.

FOR SALE.—Early swarms at fall prices: $\frac{1}{4}$ lb. bees, \$1.00; 1 lb. bees, \$1.50. Add price of queen if wanted. Untested three-band Italian queens, 75 cts. each; tested Italian queens, \$1.25 each. These are bred from best honey-gathering strain. No disease. Safe arrival and satisfaction guaranteed. This is undoubtedly the best way for Northern honey producers to increase and improve their stock. Delivery begins about April 5. Capacity, 40 swarms per day. W. D. ACHORD, Fitzpatrick, Ala.

Many men of many minds; but the minds of practical beekeepers are turned toward the old reliable three-band Italians. We have them in their purity, new blood, new importation. Untested queens from March to June, \$1.00 each; \$4.25 for six, or \$8.00 per dozen; safe arrival and satisfaction to all customers. Write for prices on large quantities. You do not have to return dead queens to us—just state it so on a postal card, and queens dead on arrival will be replaced promptly.

THE GOLDEN RULE Bee Co., Riverside, Cal.

EARLY QUEENS.—Those who desire early queens can be supplied by sending orders to us. Only three-band Italians stand the severe test against diseases, and our bees are clean. Untested queens, \$1.00 each; \$4.25 for six; \$8.00 per dozen. Always safe arrival and satisfaction to everybody. If you desire queens in large lots early, better let us book you as soon as convenient, and money can be sent when queens are wanted. Your check is good, or any way you wish to remit.

THE RIALTO HONEY Co., Box 73, Rialto, Cal.

FOR SALE.—Three-banded Italian queens, nuclei, and bees by the pound. March 15 to June 15, untested queens, each, 75 cts.; 6, \$4.25; 12, \$8.25; tested, each, \$1.25; 6, \$7.25; 12, \$14.00. Bees by pound: 1-lb. package, \$1.25; 6, \$7.25; 12, \$14.00. If you wish a queen with bees by the pound add price of queen. Write for circular and complete list.

BROWN & BERRY, Hayneville, Ala.

POULTRY

Rhode Island Reds. Strong baby chicks for sale. Write me. E. O. WALTZ, Medina, Ohio.

Eggs for hatching. S. C. White Orpingtons. Mating list free. JAMES R. LAMPSON, box B, Medina, O.

Buff Wyandotte eggs from heavy laying strain, \$2.00 per setting. M. D. CHESBRO, Greenville, N. Y.

Stock and eggs for sale, all leading varieties; also geese and Belgian hares. Catalog free. LEVI STUMB, Richland Center, Pa.

Pure-bred Indian Runner ducks, snow-white eggs, 15 for \$1.00; 100 for \$6.00. J. O. WHEELER, 921 Austin Boul., Oak Park, Ill.

Pure white and fawn and white Indian Runners, Fekins. Catalog free. White-egg strains. THE DEROY TAYLOR CO., Lyons, N. Y.

LEGHORNS.—Eggs for hatching. S. C. W. Leghorns, \$5.00 per 100; \$1.00 per 15. Send for catalog. WOODWORTH FARM, Wilton, Ct.

Eggs.—20 for \$1.00; leading varieties prize poultry, pigeons, hares, etc. Booklet free. Large illustrated catalog, 10 cts. F. G. WILE, Telford, Pa.

Electric Egg-producer will make your hens lay. Try it and see. Trial box 40 cts. prepaid. PEARL CO., Clintonville, Ct.

Sicilian Buttercups. One Utility flock. Eggs, \$2.50 per 15; unsatisfactory hatches replaced at half price. WALTER M. ADEMA, Berlin, Mich.

White Hackle strain Silver Campines; eggs for hatching, \$3 per 15; \$5 per 30. Write for circular. ELMER W. PALMER, Catskill, N. Y.

White Orpingtons, beauties. Five hens and rooster. Beauties, \$15 gets them. R. J. FOSTER, Marion, Ind.

S. C. White Minorcas, \$3 per 15; R. C. Buff Leghorns, S. C. Brown Leghorns, and Partridge Wyandottes, \$1 per 15. HILLCREST FARMS, Winchester, Ind.

FOR SALE.—Cyphers 240-egg incubators, \$15.00; latest model; fireless brooders. Cost \$10 and \$8 each. R. I. Red eggs, \$4.00 per 100. Satisfaction guaranteed. C. H. ZUBBURG, Topeka, Ill.

FOR SALE.—Chicks, 10 cts. each; eggs, 5 cts. each. S. C. White Leghorns, 248-egg strain; also one new reliable 200-egg incubator; hot-bed ash, 90 cts. each. G. ROUTZAHN, Biglerville, Pa.

Corning strain direct, S. C. W. Leghorn eggs and day-old chicks for sale. The strain that weigh, lay, and pay. Also B. P. Rocks at farmers' prices. F. J. ARMSTRONG, Nevada, Ohio.

Runner Duck Eggs.—Fawn, white-egg strain, \$1 per 12 eggs. Single-comb R. I. Red eggs, and day-old chicks, Tompkins strain. SARAH WIDBIG, Rt. 29, Burt, N. Y.

Rhode Island Reds, Partridge Wyandottes, Mottled Anconas, White Leghorns, White Cornish; Pekin, Rouen, Fawn and White Indian Runner ducks; also pure-white Indian Runners and White Call ducks. Line-bred stock for sale. Eggs to set. Prices reasonable for high-class stock.

L. G. CARY, Trimble, Ohio.

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MISCELLANEOUS

Belgian hares, breeders, and youngsters. List free. HARVEY L. STUMS, Quakertown, Pa.

Yorkshire Swine Monthly Magazine, 50 cents per year. YORKSHIRE SWINE PUBLISHING CO., Franklinville, N. Y.

FOR SALE.—Dahlia roots, 2 cts. each and up—green flowering, and 100 other colors. Soy beans, Thornless raspberry. Circular free.

JACOB MCQUEEN, Baltic, Ohio.

Pigeons! Pigeons! Thousands, all breeds; lowest prices; satisfied customers everywhere. Start with our \$38-making Jumbo Squab-breeders. Large, free, instructive, illustrated matter.

PROVIDENCE SQUAB CO., Providence, R. I.

HELP WANTED

WANTED.—Young man or boy to help take care of bees. State age, experience, and wages expected.

CHARLES ADAMS, Greeley, Col.

WANTED.—Help, season of 1914. State experience, age, and wages wanted in first letter.

MATHILDE CANDLER, Cassville, Wis.

WANTED.—Man (married preferred) experienced in queen-raising; employment by the year on a salary and percentage.

OGDEN BEE AND HONEY CO., Ogden, Utah.

WANTED.—Reliable man of good habits to work with bees the coming season. State age, experience, and wages first letter.

THE ROCKY MOUNTAIN BEE CO., Forsyth, Mont.

SITUATION WANTED

Young man, 24, single, good character, inexperienced, wishes to learn modern beekeeping during the coming season. Kindly send your proposal.

GEO. SCHWABACH, 58 Forest St., Montclair, N. J.

BEEKEEPERS' DIRECTORY

If you need queens by return mail send to J. W. K. SHAW & CO., Loreauville, Iberia Parish, La.

Nutmeg Italian queens, leather color, after June 1, \$1.00. A. W. YATES, Hartford, Ct.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York.

QUEENS.—Improved red-clover Italians bred for business, June 1 to Nov. 15, untested queens, 75c. each; dozen, \$8.00; select, \$1.00 each; dozen, \$10; tested queens, \$1.25 each; dozen, \$12.00. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Boyd, Ky.

Quirin's famous improved Italian queens, nuclei, colonies, and bees by the pound, ready in May. Our stock is northern-bred and hardy; five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices, send for circular.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

SPECIAL NOTICES

BY OUR BUSINESS MANAGER.

SWEET-CLOVER SEED.

We still have a fair supply of choice seed at prices quoted in our last issue. Early spring is the best time for sowing seed. Send in your orders if in need.

ALSIKE MAMMOTH CLOVER SEED.

The market on clover seeds seems somewhat easier than it has been, and we quote choice alsike seed at \$23.00 for 2 bushels; \$11.75 for one bushel; \$6.00 for $\frac{1}{2}$ bushel; \$8.25 for 1 peck; 25 cts. per lb., not prepaid.

Mammoth or Peavine: \$19.00 for 2 bushels; \$9.75 for one bushel; \$5.00 for $\frac{1}{2}$ bushel; \$2.75 per peck; 22 cts. per lb., not prepaid; bags included in each case.

COMB FOUNDATION ADVANCED.

The market price of beeswax has risen to such a point that we can no longer maintain the prices of comb foundation issued for this season in our wholesale and jobbing lists. An advance of 2 cents a pound is made in all quantities, 25 lbs. and up. As the retail lists are out with prices on one and five pound lots, making it difficult to change, we will, for the present, let these rates stand. Instead of dropping 2 cts. a pound between 5 and 10 pounds lots, and between 10 and 25 pound lots, the drop in each case will be one cent per pound, which brings the 10-lb. rate one cent higher, and the 25-lb. and over, 2 cents higher than given in January issues of our wholesale lists.

SECOND-HAND FOUNDATION MILLS.

We have to offer the following list of foundation machines which have been used, but are in fair condition. In many cases they will answer as well as a new machine where you have only a moderate output. Send for samples of any mill in the list which may interest you.

No. 0139, $2\frac{1}{4} \times 6$ hexagonal thin-super mill, in very good condition. Price \$14.00.

No. 0140, $2\frac{1}{4} \times 6$ hexagonal thin-super mill, in very good condition. Price \$14.00.

No. 0142, $2\frac{1}{4} \times 6$ hexagonal thin-super mill, in fair shape. Price \$10.00.

No. 0158, $2\frac{1}{4} \times 6$ hexagonal thin-super mill, in very good condition. Price \$14.00.

No. 0154, $2\frac{1}{4} \times 6$ hexagonal thin-super mill in very good condition. Price \$14.00.

No. 0156, $2\frac{1}{4} \times 6$ extra-thin-super mill, fair. Price \$10.00.

No. 0165, $2\frac{1}{4} \times 6$ hexagonal extra-thin-super mill in fair condition. Price \$12.00.

No. 0176, $2\frac{1}{4} \times 6$ extra-thin-super mill in fair condition. Price \$12.00.

No. 0180, $2\frac{1}{4} \times 6$ hexagonal thin-super mill, in fair condition. Price \$10.00.

No. 0183, $2\frac{1}{4} \times 6$ hexagonal thin-super mill, very good condition. Price \$14.00.

No. 0207, $2\frac{1}{4} \times 6$ hexagonal cell thin-super Dumb-ham mill in good condition. Price \$10.00.

No. 0218, $2\frac{1}{4} \times 10$ -inch hexagonal light-brood mill, in fair condition. Price \$18.00.

SPECIAL NOTICES

A. I. Root

DASHEEN TUBERS FOR SEED.

We are informed that Mrs. Burton, Geo. Kitchen, and Mr. Ault, whose name we gave on p. 118, Feb. 1, have sold out their stock of dasheen seed. The other parties named, so far as I know, can still furnish seed tubers. My near neighbor, Mr. Harrison, has still quite a stock.

A. I. R.

DASHEEN TUBERS FOR OUR FRIENDS.

When this catches your eye it will probably be safe to mail tubers almost anywhere, and every one of you who has paid up ahead for one year or more is entitled to two tubers for asking. They should be planted this month, either indoor or out, in order to have a long season to grow. Even if mature tubers can not be grown in the far North, dasheen "asparagus" can be grown anywhere; and every one who gets a taste of it is an enthusiast at once. Send your order direct to "your old friend," A. I. Root, Bradenton, Fla.

THE Coward Good Sense Shoe

A helpful shoe that strengthens and protects growing feet, in a way to benefit weak ankles, support arches and prevent "flat foot."

Coward Arch Support Shoe and Coward Extension Heel made by James S. Coward for over 33 years.

FOR CHILDREN, WOMEN AND MEN.
Send for Catalogue. Mail Orders Filled.

Sold Nowhere Else.

JAMES S. COWARD
264-274 Greenwich St., near Warren St., New York

NICHOLS' WHITE WYANDOTTES--BRED TO LAY

John S. Martin Regal Strain

Two matings, both headed by Cleveland 1914 winners. Carefully selected females. Eggs: Pen No. 1, \$3.00 per 15; \$7.50 per 50; \$12.00 per 100. Pen No. 2, \$2.00 per 15; \$5.00 per 50; \$9.00 per 100. I guarantee nine chicks to a setting; if less than this number hatch, I will furnish another setting at half price.

N. P. NICHOLS, - MEDINA, OHIO

MEN WHO MAKE THE WORLD.

Men who make the world of to-day are making *The Youth's Companion* what it is to-day. It is very much more than *The Companion* you may remember; no higher in purpose, but more lavish in material—larger and improved with special Family Pages, Boys' Pages, Girls' Pages, and a constant supply of serials and shorter stories.

The editorial page of information, comment, science and events will keep any man well informed, while the Family Page helps on home improvements and ideas, and both boys and girls have special pages for themselves.

You do the family a good turn when *The Youth's Companion* "as it is to-day" is sent to the home. Fifty-two issues a year—not twelve. More reading than is found in any monthly magazine at any price. You may not know *The Companion* as it is to-day. Let us send you three current issues free, that you may thoroughly test the paper's quality.

THE YOUTH'S COMPANION,
144 Berkeley St., Boston, Mass.
New Subscriptions Received at this Office.

This Washer Must Pay for Itself

A MAN tried to sell me a horse once. He said it was a fine horse, and had nothing the matter with it. I wanted a fine horse. But I didn't know any thing about horses much. And I didn't know the man very well either.

So I told him I wanted to try the horse for a month. He said "All right, but pay me first, and I'll give you back your money if the horse isn't all right."

Well, I didn't like that. I was afraid the horse wasn't "all right," and that I might have to whistle for my money if I once parted with it. So I didn't buy the horse although I wanted it badly. Now this set me thinking.

You see I make Washing Machines—the "1900 Gravity" Washer.

And I said to myself, lots of people may think about my Washing Machine as I thought about

the horse, and about the man who owned it.

But I'd never know, because they wouldn't write and tell me. You see I sell my Washing Machines by mail. I have sold over half a million that way.

So, thought I, it is only fair enough to let people try my Washing Machines for a month, before they pay for them, just as I wanted to try the horse.

Now, I know what our "1900 Gravity" Washer will do. I know it will wash the clothes, without wearing or tearing them, in less than half the time they can be washed by hand or by any other machine.

I know it will wash a tub full of very dirty clothes in Six Minutes. I know no other machine ever invented can do that, without wearing out the clothes.

Our "1900 Gravity" Washer does the work so easy that a child can run it almost as well as a strong woman, and it doesn't wear the clothes, fray the edges, nor break buttons the way all other machines do.

It just drives soapy water clear through the fibers of the clothes like a force pump might.

So, said I to myself, I will do with my "1900 Gravity" Washer what I wanted the man to do with the horse. Only I won't wait for people to ask me. I'll offer first, and I'll make good the offer every time.

Let me send you a "1900 Gravity" Washer on a month's free trial. I'll pay the freight out of my own pocket, and if you don't want the machine after you've used it a month, I'll take it back and pay the freight too. Surely that is fair enough, isn't it?

Doesn't it prove that the "1900 Gravity" Washer must be all that I say it is?

And you can pay me out of what it saves for you. It will save its whole cost in a few months, in wear and tear on the clothes alone. And then it will save 50 cents to 75 cents a week over that in washwoman's wages. If you keep the machine after the month's trial, I'll let you pay for it out of what it saves you. If it saves you 60 cents a week, send me 50 cents a week till paid for. I'll take that cheerfully, and I'll wait for my money until the machine itself earns the balance.

Drop me a line to-day, and let me send you a book about the "1900 Gravity" Washer that washes clothes in six minutes.

Address me this way—H. L. Barker, 1127 Court Street, Binghamton, N. Y. If you live in Canada, address 1900 Washer Co., 355 Yonge St., Toronto, Ontario.

Honey-Cans

We have made especial efforts this season to supply our patrons with cans and cases of the finest quality, and we have now in our warehouse a complete stock ready for immediate shipment to you.

There is much satisfaction in knowing that there is a dependable source of supply so near to all Texas Beekeepers, and others in the great Southwest. Experience has taught us to anticipate properly the needs of our patrons, and we have as yet failed to fall down at a critical time. Sometimes we feel that it is not wise for Beekeepers to trust entirely to the supply house for eleventh-hour assistance, but we concentrate our energies, nevertheless, on complete preparation, and when you are ready we are. Write us for prices.

Weed's New Process Comb Foundation

We have made extensive improvements in our comb-foundation factory this season at a great expense, and are now operating day and night under the supervision of a man direct from the A. I. Root Company, who has had many years of experience in the manufacture of this product. When placing your order with us you are assured of receiving Comb Foundation of unexcelled quality.

A full line of Root's Beekeepers' Supplies on hand at all times ready for immediate shipment.

Toepperwein & Mayfield

Nolan and Cherry Sts. San Antonio, Texas

Announcing the New Typewriter Oliver Number 7

We announce an amazing model—the OLIVER NUMBER 7—a typewriter of *super-excellence*, with automatic devices and refinements that mark the zenith of typewriter progress. A marvel of beauty, speed, and easy action. Typewriting efficiency raised to the *n*th power.

The OLIVER No. 7 embodies all previous Oliver innovations and new self-acting devices never before seen on any typewriter. A leap in advance which places the Oliver ten years ahead of its time. So smooth in action, so light to the touch, so easy to run, that experts are amazed. A model that means to the typist delightful ease of operation.

A model that means a higher standard of typewriting, longer and better service.

The NUMBER 7 is now on exhibit and sale at all Oliver Branches and Agencies throughout the United States.

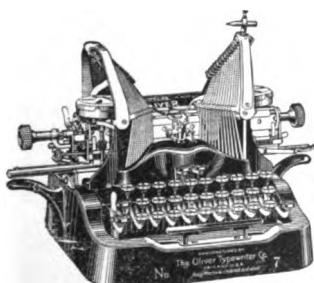
The OLIVER 7 Typewriter No. 7

The Standard Visible Typewriter

The new model has more improvements, refinements and new uses than we can even enumerate here.

The "cushioned key board" with "anchor keys" and the new automatic features mean less work for the hands, less strain on the eyes, less manual and mental effort.

With all of these masterly mechanical improvements we have made the machine more beautiful and symmetrical. From every standpoint the OLIVER NUMBER 7 attains superlative excellence.



Nothing you could wish for has been omitted. The new devices, refinements, improvements and conveniences found on the NUMBER 7 represent an enormous outlay and vastly increase its value—*the price has not been advanced one penny*. We shall even continue in force our popular 17-Cents-a-Day purchase plan, the same as on previous Oliver Models.

The OLIVER No. 7, equipped with the famous Printype, if desired, without extra charge.

You owe it to yourself to see the new machine before you buy any typewriter at any price. Note its beauty, speed and easy action, its wonderful automatic devices. Try it on any work that is ever done on typewriters. Try it on many kinds of work that no other typewriter will do.

It is a significant fact that the typewriter that introduced such epoch-making innovations as visible writing, visible reading, Printype, etc., should be the first to introduce automatic methods of operation.

Oliver Book DeLuxe

We are just issuing a richly illustrated catalog describing the Oliver No 7. A copy is yours for the asking. There are still openings for more Local Agents in many localities. This is a good time to investigate these money-making opportunities.

The Oliver Typewriter Co.
Oliver Typewriter Bldg., Chicago

Planet Jr.



No. 16 Planet Jr
Single
Wheel Hoe,
Cultivator,
Rake
and Plow



No. 4 Planet Jr
Combined
Hill and Drill
Seeder, Wheel Hoe,
Cultivator
and Plow

The highest type of Single Wheel Hoe made. It is light, handy, and adapted to use by man, woman, or child. Has leaf guard for close work, and a durable steel frame.

This is a practical every day time, labor, and money saver. It combines in a single implement a capital seeder, an admirable single-wheel hoe, furrower, wheel cultivator, and a rapid and efficient wheel garden plow. Every owner of a vegetable garden can save the cost of this tool in a single season.

Nearly two million soil-tillers all over the world are saving time, lightening labor and getting better results by using Planet Jr guaranteed farm and garden tools. For all requirements. \$2 to \$100.

FREE Our new 72-page illustrated catalogue describes 60 tools for all kinds of horse and hand cultivation. Write for it today.

S. L. ALLEN & CO., BOX 1106 S Philadelphia



No. 76 Planet Jr
Pivot-
wheel Riding
Cultivator,
Plow,
Furrower,
and
Ridger



No. 72 Planet Jr
2-row
Pivot-wheel
Cultivator,
Plow,
Furrower,
and
Ridger



No. 11 Planet Jr
Double
Wheel Hoe,
Cultivator,
Plow and
Rake

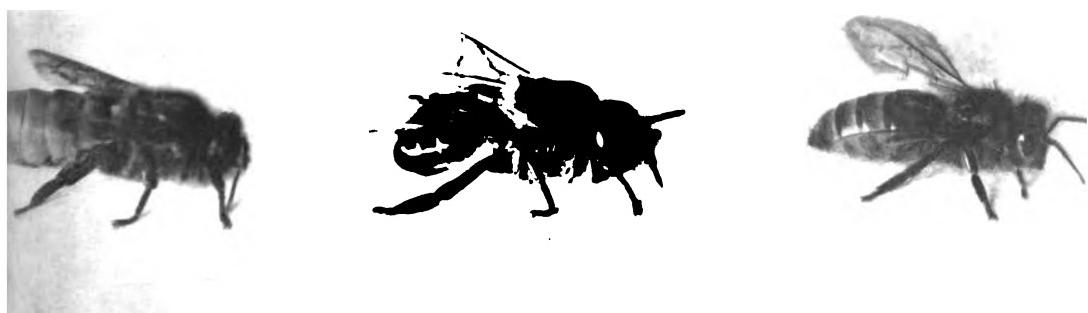
Cultivates at one time two rows of potatoes, corn, beans, etc., in rows 28 to 44 inches apart. Works like a charm in check rows, crooked rows, and rows of irregular width. Can be equipped with roller-bearings, spring-trip standards, and discs.

A wonderful implement in extensive cultivation of corn, potatoes, etc. Light in draft, simple and strong in construction and comfortable to ride upon. Works rows 28 to 44 inches, and cultivates crops until 5 feet high.

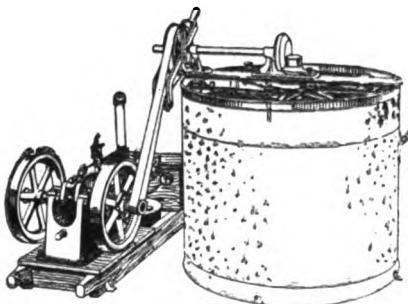
The greatest cultivating tool in the world for the grower of garden crops from drilled seeds. It has steel frame. The plow opens furrows for manure, seed, etc., and can be reversed for covering. The cultivating teeth are adapted for deep or shallow work and for marking out. Crops can be worked both sides at once until 20 inches high.

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—OF—
CALIFORNIA.

Gleanings *in* Bee Culture



ROOT'S POWER EXTRACTORS for the LARGE PRODUCER for 1914



The late W. Z. Hutchinson, when asked as to what would combine best with beekeeping, said, "The best thing to go with bees is—more bees." If more bees is the slogan, then the best equipment should be installed. This would be an outfit that will handle advantageously the product of 200 or more colonies with a minimum of time and labor.

POWER EXTRACTING OUTFIT.—The value of this cannot be gauged entirely by the number of days it is used during the season. It should be remembered that it displaces a large amount of extra equipment in the way of extra supers and combs. The extracting must be done quickly in order to hold in check the swarming that is sure to follow unless room is given when needed. The amount thus saved, including reduction of labor and time, will materially reduce cost of production.

ENGINE.—This should not be selected without due examination. There are certain types of gasoline-engines that are not fitted for driving honey-extractors. Machines requiring to be started and stopped an endless number of times during the day require an engine of special construction, and the beekeeper will do well to investigate thoroughly these points before purchasing. Our new engines, the "BUSY BEE," are selected for and are exactly adapted for just this kind of work.

CAPPING-MELTER.—No extracting house is complete without one. We have a number of styles and sizes to select from. Illustrations of all these will be found in our large catalog. The smaller sizes are intended to be used with wax-presses, which also are shown.

HONEY-KNIVES.—For rapid and easy work our new steam honey-knives can't be beat. Extra tubing is furnished when ordered. Send for our new 34-page book, "Power Honey-extractors," describing these fully.

These equipments are supplied by various dealers throughout the country. Information as to nearest dealer on request.



The A. I. Root Co., Medina, Ohio

SEASONABLE SUGGESTIONS "FALCON" Bee Supplies

HIVES—What better chance have you to get your "falcon" hives nailed than just now? Now's the time to place your order for some "falcon" hives. Make use of your spare time by nailing your hives and frames.

SECTIONS—Sections ordered at this time can be folded before the season begins, and you are that much more ahead, which means money in your pocket.

FOUNDATION—This is an excellent time to order foundation and to put it into sections and frames, now when you have the spare time, thus preparing you to go into the season with a good start. Here's what Mr. J. J. Wilder, Cordele, Ga., says about our foundation: "Your foundation is the best I ever bought, and I am more than pleased with it." Mr. Wilder is one of the largest beekeepers in the country.

SUPERS—Supers can be nailed and painted, and filled with sections and starters, by ordering your requirements now. You can not afford to be without supers when the rush comes. Get your order in for "falcon" supers now before the swarming season begins.

Send for our foundation samples and new Red Catalog, postpaid.

Dealers Everywhere: New England States, Ross Bros. Co., 90 Front Street, Worcester, Mass.
Central States, The Fred W. Muth Co., 204 Walnut St., Cincinnati, Ohio.
Western States, C. C. Clemons Bee Supply Co., 128 Grand Ave., Kansas City, Mo.
Southern States, J. J. Wilder, Cordele, Ga., and many others here and abroad.

W. T. Falconer Manufacturing Company, Falconer, New York

Where the good beehives come from

"ROOT" "PEIRCE" "ZANESVILLE"

Three words that unlock the possibilities of successful beekeeping.

"ROOT QUALITY" has always represented the acme of perfection in every thing pertaining to bees.

"PEIRCE SERVICE" is fast becoming a synonym for promptness coupled with courtesy and fairness.

ZANESVILLE—the metropolis of eastern and southern Ohio—is the logical distributing-point for the beekeepers of Ohio, West Virginia, and western Pennsylvania; and those more remote can be served with a large degree of satisfaction on account of the superior shipping facilities of this city.

Our 1914 Catalog of Beekeepers' Supplies and Introduction to Beekeeping is now being sent to those on our mailing-list. If you have not already received or do not receive it soon, a postal-card request will insure your receiving it without delay.

Prospects for the coming season are unusually bright, and both prudence and economy would suggest the early placing of your order.

E. W. Peirce, Zanesville, O.

Airdome Bldg., South Sixth St.

It turns over an important "new leaf" beginning with the January number.

The Guide to Nature Several New Features

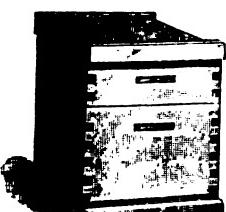
"Birds in the Bush," a department edited by Edmund J. Sawyer, with illustrations from original drawings by this talented artist-ornithologist.

"The Fun of Seeing Things," a department for young folks, edited by Edward F. Bigelow, succeeding his well-known work as editor of the "Nature and Science" department of "St. Nicholas" for more than fourteen years.

This new department will be really new. It will not be "schooly," not "nature study," not to induce parents and educators to say, "It is good for the children," but it will appeal directly to the young folks themselves and will help them to enjoy the natural objects that surround them. It will be true to its name.

Subscription \$1.00 a year; single copy 10c.
To new subscribers, four months trial for 25c. Address (and make check or money order payable to)

**The Agassiz Association,
ARCADIA:
Sound Beach, Connecticut**



EARLY-ORDER DISCOUNTS WILL

Pay You to Buy Bee Supplies Now

29 years' experience in making everything for the beekeeper. A large factory specially equipped for the purpose ensures goods of highest quality. . . . Write for our illustrated catalog and discounts today.

LEAHY MFG. CO.. . 95 Sixth St., . Higginsville, Missouri

HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), carriage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

NATIONAL BEEKEEPERS' ASSOCIATION GRADING RULES

Adopted at Cincinnati, Feb. 18, 1913.

Sections of comb honey are to be graded: First, as to finish; second, as to color of honey; and third, as to weight. The sections of honey in any given case are to be so nearly alike in these three respects that any section shall be representative of the contents of the case.

I. FINISH:

1. *Extra Fancy*.—Sections to be evenly filled, comb firmly attached to the four sides, the sections to be free from propolis or other pronounced stain, combs and cappings white, and not more than six unsealed cells on either side.

2. *Fancy*.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white, and not more than six unsealed cells on either side exclusive of the outside row.

3. *No. 1*.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white to slightly off color, and not more than 40 unsealed cells, exclusive of the outside row.

4. *No. 2*.—Comb not projecting beyond the box, attached to the sides not less than two-thirds of the way around, and not more than 60 unsealed cells exclusive of the row adjacent to the box.

II. COLOR:

On the basis of color of the honey, comb honey is to be classified as: first, white; second, light amber; third, amber; and fourth, dark.

III. WEIGHT:

1. *Heavy*.—No section designated as heavy to weigh less than fourteen ounces.

2. *Medium*.—No section designated as medium to weigh less than twelve ounces.

3. *Light*.—No section designated as light to weigh less than ten ounces.

In describing honey, three words or symbols are to be used, the first being descriptive of the finish, the second of color, and the third of weight. As for example: *Fancy, white, heavy* (F-W-H); *No. 1, amber, medium* (1-A-M), etc. In this way any of the possible combinations of finish, color, and weight can be briefly described.

CULL HONEY:

Cull honey shall consist of the following: Honey packed in soiled second-hand cases or that in badly stained or propolized sections; sections containing pollen, honey-dew honey, honey showing signs of granulation, poorly ripened, sour or "weeping" honey; sections with comb projecting beyond the box or well attached to the box less than two-thirds the distance around its inner surface; sections with more than 60 unsealed cells, exclusive of the row adjacent to the box; leaking, injured, or patched up sections; sections weighing less than ten ounces.

HONEY-GRADING RULES ADOPTED BY THE COLORADO STATE BEEKEEPERS' ASSOCIATION,

DECEMBER 13, 1911.

FANCY WHITE.—Sections to be well filled, comb firmly attached to all sides and evenly capped except the outside row next to the wood. Honey, combs, and cappings white, and not projecting beyond the wood; wood to be well cleaned; no sections in this grade to weigh less than 18 $\frac{1}{4}$ ounces.

NO. 1.—Sections to be well filled, combs firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey white or very slightly off color. Combs not projecting beyond the wood; wood to be well cleaned; no section in this grade to weigh less than 18 $\frac{1}{4}$ ounces.

CHOICE.—Sections to be well filled; combs firmly attached; not projecting beyond the wood, and entirely capped, except the outside row next to the wood. Honey, comb, and cappings from white to amber, but not dark; wood to be well cleaned; no section in this grade to weigh less than 12 ounces.

NO. 2.—This grade is composed of sections that are entirely capped, except row next to wood, weighing from ten to twelve ounces or more, also of such sections that weigh 12 ounces or more, and have not more than 50 uncapped cells all together, which must be filled. Combs and cappings from white to amber in color, but not dark; wood to be well cleaned.

EXTRACTED HONEY.—Must be thoroughly ripened, weigh 12 pounds per gallon. It must be well strained, and packed in new cans. It is classed as white, light amber, and amber.

STRAINED HONEY.—This is honey obtained from combs by all other means than the centrifugal extractors, and is classed as white, light amber, amber, and dark; it must be thoroughly ripened and well strained. It may be put up in cans that previously have contained honey.

BOSTON.—We quote fancy and No. 1 white comb honey at 15 to 16; fancy white extracted honey in 60-lb. cans, 11. Beeswax, 30.

Boston, March 19.

BLAKE-LEE CO.

ALBANY.—We have almost no honey market to report. Our stock of comb honey is exhausted, and the demand for extracted is so nominal we can scarcely quote price. We don't refuse any offers, as there is so much extracted honey that some will have to be carried over the year, we fear.

Albany, March 20.

H. R. WRIGHT.

Honey reports continued on page 5.

**JUST
OUT!**

New 1914 Catalog--"Everything for Bees"

Lay your plans for the new season now. Send for the 1914 Muth Catalog of Beekeepers' Supplies. It's just off the press. In it you will find full information about the remarkable MUTH SPECIAL Dovetailed Hives. Drop a postal card at once—sure!

THE FRED W. MUTH CO.

204 WALNUT STREET

"The Busy Bee Men"

CINCINNATI, OHIO

P. S.—Ship us your old combs and cappings and let us render them for you. Our process extracts the last drop of wax from the slumgum. This means money for you. Write for full particulars.

SPECIAL DELIVERY

During this month we shall double our usual efforts in points of delivery and service. We carry nothing but the Root make, which insures the best quality of every thing. We sell at factory prices, thereby insuring a uniform rate to every one. The saving on transportation charges from Cincinnati to points south of us will mean quite an item to beekeepers in this territory. We are so located that we can make immediate shipment of any order the day it is received.

New 64-page Catalog

Our new 1914 catalog contains double the pages of former editions and requires extra postage. It is filled from cover to cover with complete lists of goods in every line to meet every requirement of beekeepers. If you haven't received a copy when you read this, be sure to ask for one. It will save you money.

New Features for 1914!!

Few radical changes have been made this season. It should be noted, however, that we will send out with regular hives, unless otherwise ordered, the metal telescopic or R cover with super cover underneath. The side rail for the bottom-board will be extra length so as to overcome the difficulty experienced by some last season. Improvements have been made in extractors. We shall carry a very heavy stock so that orders may be filled with our usual promptness. Write us your needs.

C. H. W. Weber & Co.

2146 Central Avenue

Cincinnati, Ohio

Gleanings in Bee Culture

E. R. ROOT
Editor

A. I. ROOT
Editor Home Dep.

H. H. ROOT
Ass't Editor

J. T. CALVERT
Business Mgr.

Department Editors:—Dr. C. C. Miller, J. E. Crane, Louis H. Scholl, G. M. Doolittle, Wesley Foster, J. L. Byer, P. C. Chadwick.

\$1.00 per year. When paid in advance: 2 years, \$1.50; 3 years, \$2.00; 5 years, \$3.00.

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CHANGE OF ADDRESS. When a change of address is ordered, both the new and the old must be given. The notice should be sent two weeks before the change is to take effect.

DISCONTINUANCES. Notice is given just before expiration. Subscribers are urged, if unable to make payment at once after expiration, to notify us when they can do so. Any one wishing his subscription discontinued should so advise us upon receipt of the expiration notice; otherwise it will be assumed that he wishes GLEANINGS continued and will pay for it soon.

HOW TO REMIT. Remittances should be made by draft on New York express-order or money-order, payable to the order of The A. I. Root Co., Medina, Ohio. Currency should be sent by registered letter.

AGENTS. Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

FOREIGN SUBSCRIPTION AGENTS.

Foreign subscribers can save time and annoyance by placing their orders for GLEANINGS with any of the following authorized agents at the prices shown:

PARIS, FRANCE. E. Bondonneau, 154 Avenue Emile Zola.

Per year, postpaid, 8 francs.

GOODNA, QUEENSLAND. H. L. Jones. Any Australian subscriber can order of Mr. Jones. *Per year, postpaid, 6/7 p.*

DUNEDIN, NEW ZEALAND. Alliance Box Co., 24 Castle St. *Per year, postpaid, 6/7 p.*

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Honey reports continued from page 2.

BUFFALO.—Since our last report the demand for white comb honey has improved. It looks as though it would continue in better demand. No improvement in other grades.

Buffalo, March 18. W. C. TOWNSEND.

INDIANAPOLIS.—Fancy white comb is being offered here at 16 to 17 cents per pound; amber comb, 14 to 15; white-clover extracted, 9 to 10 in 5-gallon cans. Much comb honey is being held here; but at this writing there is very little demand. Extracted is in fair demand. Producers are being paid 32 cents cash for beeswax, or 34 in trade.

Indianapolis, March 18. WALTER S. PODER.

KANSAS CITY.—The supply of comb honey is still large, demand fair. The supply of extracted is moderate, demand fair. We quote No. 1 white comb 24 sections per case, \$3.75 to \$3.85; No. 2 ditto, \$2.50 to \$2.60; white extracted, per pound, 8 to 8½; dark and amber, 7 to 7½. Beeswax, 25 to 30.

C. C. CLEMONS PRODUCE CO.

Kansas City, March 18.

LIVERPOOL.—The beeswax market is without supplies of Chilian, for which the value to-day is \$38.88 to \$43.74 per cwt. as to quality. Fourteen bags have arrived per steamship Kenuta. For Chilian honey the market is very dull, and easier. Sales 95 barrels, principally no pile, or unselected, at \$4.80, with retail of pile 3 at \$6.00.

Liverpool, March 4. TAYLOR & CO.

ZANESVILLE.—The demand for honey, while not brisk, is not far from normal for the season, there being some call for best quality of comb. We quote No. 1 to fancy white at 16½ to 18½ in a jobbing way; 18 to 20 wholesale. Best white extracted in 60-lb. cans, 9 to 10. These quotations are for white clover. Western honeys rule about a cent less. The price of beeswax remains arbitrary. At present producers would receive 32 to 33 cts. cash, 34 to 35 in exchange for supplies.

Zanesville, March 17. EDMUND W. PEIRCE.

CHICAGO.—The cold weather of February helped the sale of honey, especially that of comb, so that the market is now practically cleaned up on all grades of comb honey—a situation which, sixty days ago, was quite unlooked for. Fancy grades are selling at from 14 to 15 cts. per lb.; the off grades are also finding a market, with very little being offered. Prices range from 8 to 13. Extracted is weak with the best white clover and basswood bringing from 8 to 9, with other white grades from 7 to 8. The demand for beeswax has been very active, and brings from 33 to 35, according to color and cleanliness.

Chicago, March 18. R. A. BURNETT CO.

NEW YORK.—We have nothing new to report. While there is as yet some demand for fancy and No. 1 white comb honey, it does not count for much, and other grades which were shipped to us late in the season, when the demand was pretty well over, are practically unsalable, and we have several lots in stock which we would rather not have had sent to us all. If it had been shipped early we could have disposed of it; but now we have it on our hands, and would rather not have received it at all. Extracted honey is very quiet. There is some demand for strictly fancy white clover, while other grades are neglected. Prices remain about the same as in our last quotations.

New York, Mar. 20. HILDRETH & SEGELKEN.

ST. LOUIS.—Our honey market is not very active, but about normal for this season of the year. Prices are about the same as quoted in our last letter. Light-amber extracted honey is more in demand; and stocks of this honey are lighter here than comb honey. Southern extracted and strained light amber in barrels we are quoting in a jobbing way from 6½ to 7; in 5-gallon cans, 7 to 7½; dark, ½ to 1 ct. less; comb honey, fancy clover, 14 to 16; light amber, 12 to 14; amber, 10 to 12; dark and inferior, less. By the case, fancy clover, \$3.00 to \$3.25; light amber, \$2.50 to \$3.00; amber, \$2.00 to \$2.25. Beeswax is scarce, and firm at 33½. Impure and inferior, less.

R. HAETMANN PRODUCE CO.

St. Louis, March 21.

Deposit your Savings with

The SAVINGS DEPOSIT BANK CO.

of MEDINA, O.

The Bank that pays 4%
Write for Information

A.T.SPITZER PRESIDENT	E.R.ROOT VICE-PRESIDENT	E.B.SPITZER CASHIER
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ASSETS OVER ONE MILLION DOLLARS

New England Beekeepers

Every Thing in Supplies

New Goods Factory Prices Save Freight

CULL & WILLIAMS CO.
Providence, R. I.

STATEMENT OF THE OWNERSHIP, MANAGEMENT,
CIRCULATION, ETC., OF GLEANINGS IN BEE
CULTURE, PUBLISHED SEMI-MONTHLY AT
MEDINA, OHIO, REQUIRED BY THE ACT
OF AUGUST 24, 1912.

Editor, A. I. Root, Medina, Ohio; Managing Editor, E. R. Root, Medina, Ohio; Business Manager, J. T. Calvert, Medina, Ohio; Publisher, The A. I. Root Co., Medina, Ohio.

Owners: The A. I. Root Co. Stockholders holding 1 per cent or more stock as follows:
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(Signed) J. T. CALVERT.

Sworn to and subscribed before me this 11th day of March, 1914.

(Signed) FRANK SPELLMAN.

[SEAL.] (My commission expires Feb. 17, 1917.)

DENVER.—Our local market is still well supplied with honey, and our jobbing quotations are as follows: Strictly No. 1 white, per case of 24 sections, \$2.70; choice, \$2.57; No. 2, \$2.43; extracted, white, 8 to 9 cts.; light amber, 7 to 7½. We are in the market for beeswax, and pay 32 cts. cash per pound and 34 in trade, delivered here.

THE COLORADO HONEY-PRODUCERS' ASSOCIATION,
FRANK RAUCHFUSS, Mgr.

CINCINNATI.—The demand for honey is somewhat improved from what it was 30 days ago. The stocks are heavy, and we hardly think the prices for next season will be as stiff as last. We continue to sell our fancy comb honey in the wholesale way at \$3.75 a case delivered; extracted table honey from 7½ to 10; amber extracted from 5½ to 6½ and 7, according to the quality and quantity purchased. For choice bright yellow beeswax we are paying 32 cts. per lb., delivered here, and 34 in trade for supplies.

THE FRED W. MUTH CO.

Cincinnati, March 18.

Gleanings in Bee Culture

DEVOTED TO HONEY, BEES, AND HOME INTERESTS

A. L. BOYDEN, Advertising Manager.

Established 1873.

CIRCULATION 35,000.

Issued semi-monthly.

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The New Bingham Bee Smoker

the all-important tool of the most extensive honey producers of the world. This illustration shows the remarkable steel fire-grate which such men as Mr. France, Mr. Rauchfuss, the Dadants, and others say is the best on the market. . The Smoke Engine grate has 381 holes for air and draft—equal to an opening two inches square. Buy the large sizes and be pleased. For sale at your dealers or direct.

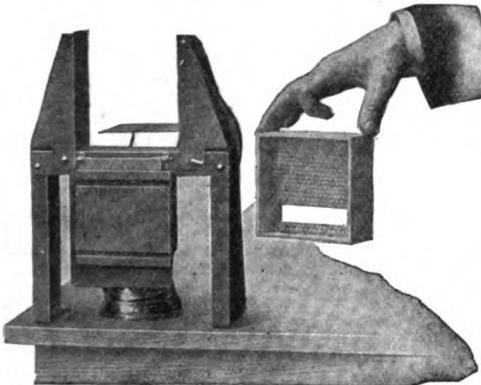
Smoke Engine, 4-inch stove, wt. 1½ lbs.,	\$1.25
Doctor, 8½-inch stove, wt. 1½ lbs.,	.85
Two larger sizes in copper, extra50
Conqueror, 8½-inch stove, wt. 1½ lbs.,	.75
Little Wonder, 3½-inch stove, wt. 1 lb.,	.50
Two largest sizes with hinged cover.	



NEW BINGHAM
BEE SMOKER

Patented

A. G. WOODMAN CO.
GRAND RAPIDS, MICH.



WOODMAN'S SECTION - FIXER

A NEW MACHINE of pressed steel for folding sections and putting in top and bottom starters, all at one handling. A great time-saver, and a good job assured with ease. With top and bottom starter the comb is firmly attached to all four sides—a requirement to grade Fancy. Increase the value of your crop this season by this method. We want every one to try this machine. We guarantee satisfaction. Adjustable to any width—4½x4½ or 4x5 section. Model received with much favor by recent Detroit and Chicago beekeepers' conventions. Price \$2.50 f. o. b. Wt. 4 lbs. Send for special circular showing large illustrations.

A. G. WOODMAN CO., GRAND RAPIDS, MICH.

MAKE MORE MONEY
FROM
BEES

BLANKE'S BEE-
BOOK FREE... .

Johnnie-on-the-Spot Deliveries

When you order Bee Goods you want them "now." We are in the very heart of the Bee Section—no city with so good package-car service—largest stock west of the Mississippi. Whenever possible orders shipped same day as received—more carefully packed than ordinary.

BLANKE'S BEE BOOK FREE—a catalog filled with helpful tips for either beginner or old timer. Write to-day before you need supplies.

Department 2

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St. Louis, Mo.

BARNES' Hand and Foot Power MACHINERY

This cut represents our combined circular saw, which is made for beekeepers' use in the construction of their hives, sections, etc.

Machines on Trial
Send for illustrated catalog and prices. Address

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RAIN OR SHINE



Stevenson's Weather Cottage foretells weather changes 8 to 24 hours in advance. This little weather cottage is carefully made with thermometer, modeled staghorn and bird on front of building and birdhouse on roof.

The action is based on scientific principles, and is very accurate. In bad weather the man, with folded umbrella, comes out, and in fair weather the lady appears.

Interesting to the entire family.

Every cottage fully guaranteed. Size 13 in. high. Sent parcel post prepaid in U. S. or Canada for \$1. Your money back if dissatisfied.

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"SUPERIOR" Foundation Assures Superior Quality

Weed process machinery at Ogden eliminates excessive freight rates for Northwest-ern beekeepers on beeswax and foundation shipments. Special prices on request.

We sell "ROOT" bee-sup-plies and "AMERICAN" honey-cans at the factory prices. Payment also ac-cepted in honey or beeswax.

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OGDEN, UTAH**

Branch at Idaho Falls, Idaho

Eastern European Beekeepers

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Alexandria, Egypt
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Bucarest, Roumania
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For catalog and inquiries write at once to : : :

Emile Bondonneau

Root's General Agent for Eastern Europe and Colonies
154 Ave. Emile Zo'a, Paris 15 (France)

An Opportunity to Make an Independent Living from a small cultivated area in "The Land of Manatee"

On the Gulf Coast of Southern Florida

All the early vegetables, marketed at highest prices, are success-fully grown—3 and 4 different crops per annum. A home in a delight-ful year-round climate. A young man paid \$125 for an acre of land this year, and spent another \$125 in clearing and cultivating it in toma-toes. The production was 550 baskets, which were sold at \$2.50 per basket; total gross production from a single crop on an acre of ground, \$1375. The same advantages and opportunities are open to you. Let us tell you in detail of the possibilities in this favored section. Ask for beautiful illustrated book, "Fruit and Vegetable Growing in Manatee County."

J. A. PRIDE

General Industrial Agent
SEABOARD AIR LINE RAILWAY
Suite No. 376, Norfolk, Va.

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We Expect to Use
SEVENTY TONS

of beeswax during the next **SIX MONTHS**, and we have on hand less than twenty tons. We offer for good average wax, delivered at Medina, 33 cts. **CASH**, 35 cts. **TRADE**. If you have any good wax to sell write to us or ship it by freight. Send us shipping receipt, giving us gross weight also net weight shipped. Be sure to mark your shipment so we can identify it when received.

Beeswax Worked into Foundation

If you want your wax worked into foundation we are prepared to do this for you at prices equal to those made by other standard manufacturers. Write for price if interested.

The A. I. Root Co., Medina, Ohio

Are You Interested.....

In securing a crop of honey this coming season? Send us your name and address for 1914 catalog, and make selection of the hive and appliances. You should have a good year if you are prepared as the honey yield begins.

The A. I. Root Co., Syracuse, N. Y.
1631 West Genesee Street

"If goods are wanted quick, send to Pouder."

ESTABLISHED 1889

When You Think of Bee Supplies, Think of Pouder

A very complete stock of goods on hand, and new arrivals from factory with an occasional carload to keep my stock complete. Shipments are being made every day, and the number of early orders received is very encouraging. Numerous orders reached me during our February and March blizzards, which indicates that the beekeepers have confidence in the coming season.

My new catalogs have been distributed. If any of my friends have failed to receive theirs, please write for another. If more convenient you may make up your order from the Root Catalog---our prices being identical. For very large orders at one shipment, write for an estimate, and I can save you something by following the factory schedule.

I shall be glad to hear from my friends as to how bees are wintering and springing, and as to prospects for clover.

Walter S. Pouder
878 Mass. Ave., Indianapolis, Indiana

Indicate on a postal which of the catalogs named below you are interested in — They are Yours for the Asking.

CATALOG A.—BEE-SUPPLIES, listing every thing a beekeeper needs for his bees. Our goods are all "Root Quality," and we can save you time and freight expense in getting them. Let us furnish you with an estimate on your needs for the season.

CATALOG B.—BEES AND QUEENS. Mr. M. H. Hunt has charge of our queen-rearing apiary. We specialize in choice Italian queens, three-banded and golden, and bees by the pound. Orders filled in rotation as received.

CATALOG C.—BERRY SUPPLIES. We carry a full stock of standard quart baskets and 16-quart crates. BEESWAX WANTED.

M. H. HUNT & SON, 510 North Cedar Street, LANSING, MICHIGAN

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The A. I. Root Co.

Archdekin's FINE ITALIAN QUEENS

THREE BANDED

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J. F. Archdekin, Rt. 7, St. Joseph, Mo.

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THE ORIGINAL POULTRY MUSTARD IN AMERICA

Write to us for information.
Booklet and circulars free.

THE R. T. FRENCH COMPANY, Mustard-Makers
ROCHESTER, N. Y. Department D.

"Griggs Saves You Freight"

TOLEDO

"Griggs Saves You Freight"

New goods arriving permits us to fill orders same day as received, and this, with direct lines to your door and low freight rates, makes TOLEDO the best place to order your goods from.

Our NEW ILLUSTRATED CATALOGS for 1914 are here and being mailed out. Send your name for one.

Send us list of goods wanted and receive our SPECIAL PRICES for quantity orders. BEESWAX is in great demand. Send it in now. We pay 82c cash, 34c in trade. Shoot it in.

S. J. GRIGGS & CO.,

- 26 NORTH ERIE STREET,

"Griggs is Always on the Job"

- TOLEDO, OHIO

Are Your Bees Short of Stores?

We have candy in large paper pie-plates just right for late winter and early spring feeding. Write for prices.
We carry a full line of supplies at all times.

H. H. JEPSON
182 Friend Street BOSTON, MASS.



Beekeepers' Supplies

Our 1914 64-page catalog ready to mail you free. . . . Can make prompt shipment of regular-stock goods, as we have a good supply of The A. I. Root Co.'s goods on hand. The rush season will soon be on hand. Our freight facilities are good. Small packages we can rush through by parcel post. Express rates are much lower now also. Let us quote you. Let us hear from you. Beeswax taken in exchange for supplies or cash.

JOHN NEBEL & SON SUPPLY CO.
High Hill, Montgomery Co., Mo.

When You Buy Lewis Beeware

... You Get . .

LEWIS QUALITY.—Which means that all Lewis Hives are made out of clear white pine, and Lewis Sections made out of fine white basswood. Material in these goods is the best obtainable, selected by experts.

LEWIS WORKMANSHIP.—The Lewis Factory is equipped with the latest improved machinery, constantly watched over by experts. The Lewis head mechanic has 36 years of bee-supply experience; the superintendent of bee-hive department 30 years; the superintendent of sections 29 years. These and many other skilled men have a hand in all the Lewis goods you buy.

LEWIS PACKING.—All Lewis Beeware is carefully and accurately packed—a patent woven wood-and-wire package made only by the Lewis Company is employed largely in packing; this makes the package light, compact, and damage-proof.

LEWIS SERVICE.—Years ago all goods were shipped direct from the factory with attending high freight-rates and delays during the honey season. NOW Lewis Beeware can be obtained almost at your own door. Over 30 Distributing Houses carrying Lewis Beeware by the carload are dotted all over the United States and foreign countries. Write for the name of the one nearest you.

Our New 1914 Catalog is Now Out. Send for One

G. B. LEWIS CO., Manufacturers
of BEEWARE **Watertown, Wis.**

Send for Our Prices on

BEE SWAX

We are paying higher prices than ever before at this season. WHY? Because of the tremendous demand for

Dadant's Foundation

Write at once. . . We will quote prices F. O. B. here or F. O. B. your station.

DADANT & SONS
HAMILTON, ILLINOIS.

Gleanings in Bee Culture

Published by The A. I. Root Co., Medina, Ohio.

H. H. Root, Assistant Editor. E. R. Root, Editor. A. L. BOYDEN, Advertising Manager.
A. I. Root, Editor Home Department. J. T. CALVERT, Business Manager.

Entered at the Postoffice, Medina, Ohio, as second-class matter.

VOL. XLII.

APRIL 1, 1914

NO. 7

Editorial

EDITION OF "THE HONEY-BEE" EXHAUSTED.

We have just learned from Mr. W. D. Wright that the edition of six thousand copies of Bulletin 49, entitled "The Honey-bee," published by the New York State Department of Agriculture, is entirely exhausted, and can not be supplied hereafter. Mr. Wright adds, however, that some time in the future a new edition may be issued. If so, due notice will be given at that time.

WINTERING REPORTS.

On account of the late spring, it is still too early (March 23) to get reports on wintering. It is certain that colonies in cellars are having an extra-long siege, very few having been taken out at this writing. With the warm weather delayed so long, colonies that were not strong in the fall, or that were not supplied with an abundance of good stores, are certain to suffer.

Advance reports from New Jersey, Michigan, Massachusetts, Colorado, Wisconsin, Iowa, and New York show but little loss.

Considerable loss has been reported in certain parts of Kentucky where the weather has been extremely changeable. Further particulars will be given in our next issue.

OUR COVER PICTURE.

The bees shown on the cover of this issue were photographed last fall from life, or, rather, from death, for the bees were kept under water over night, then carefully dried, and brushed with camel's-hair brushes until they assumed as near as possible the appearance of live bees.

We realize that these pictures are far from perfect—for instance, the drone selected appears to be a trifle undersized in respect to length of abdomen. There are several other defects having to do with the arrangement of the legs, wings, etc., all of which we hope to rectify some time when we photograph bees again.

The original queen was just three-quarters of an inch long from tip of abdomen to tip of head. The larger view on the cover is $2\frac{3}{4}$ inches in length, so that the amount of enlargement of the bees in the

center of the page is in the proportion of three to eleven; or, in other words, the pictures are nearly four times life size. The side views shown below are of the same bees enlarged only a trifle over two times.

THE CHARACTER OF THE MATERIAL USED IN THIS SPECIAL NUMBER.

SOME, after reading the various articles by the queen-breeders in this special number on breeding, may feel that certain articles savor of advertising. In justice to all we should like to explain that it would hardly be possible to publish a special number of this kind without using the best ideas from some of our breeders. Some of these breeders, feeling that their remarks might be construed as an attempt at getting some free advertising, have suggested that their names be not used, but that a *nom de plume* be substituted. On reading over this array of splendid material, we have decided that the articles would lose considerable interest if the names of the writers were not known, and we thought best to treat all alike, therefore, by publishing the names and addresses as usual. We are convinced that not one of the writers in this issue has tried to advertise his own particular queens, or those of any other breeder.

BEFORE YOU CONDEMN A QUEEN, BE SURE THAT THE QUEEN IS TO BLAME.

FREQUENTLY colonies are so situated that the bees naturally drift to other hives near by, which are either more prominent or else there are more bees going in and out, which causes the bees of the hive in question to be naturally drawn toward the scene of greater excitement. During a brisk honey-flow, moreover, heavily laden bees falling in the grass are apt to crawl into the first hive they come to, where they are welcomed, of course, because of their load of honey. Under such conditions, especially when the hives are located in groups, one or more hives in the group may suffer by the depletion in bees because they are located on the side away from the main source of honey, or on the side away from the natural line

of flight from the apiary. This causes such a poor showing that the queen is likely to be blamed, when in reality she may be doing as well as any queen could under the circumstances.

Our Mr. George H. Rea tells of moving his weak colonies in the spring to the side of the apiary nearest the natural line of flight in order to get them strengthened by many returning bees which, coming back from the field (some of them at least), go into the nearest hive.

Sometimes a hive is located in an unfortunate position through the winter which causes an unusual mortality of the workers. In the spring the queen works at a disadvantage, having a much smaller colony to support her. It is not safe to condemn such a queen in the spring without giving her a chance to show what she can do under favorable conditions.

LONGEVITY A VERY IMPORTANT FACTOR.

Several of the writers in this number touch on the subject of longevity of the workers. Our Mr. Geo. H. Rea, referring especially to Dr. Miller's Straw, p. 205, March 15, submits the following:

It is generally agreed by beekeepers everywhere that colonies strong in bees at all seasons of the year are most desirable, and give best results in the honey-flows. In spite of this fact it is often observed that some colonies very strong in bees do not produce nearly as much honey as other colonies in the same yard that are apparently not nearly as strong. Several conditions may enter into this, but it is not my purpose to discuss them, only in so far as the question of longevity enters into it.

The subject may be divided into three propositions: 1. A good queen may easily lay sufficient eggs to build up rapidly and keep a colony strong; but the bees produced may be a little below the average in length of life, and the working force may die off so rapidly that the surplus honey gathered falls far below the average. Strong in young bees but weak in field force will, I believe, explain the reason for such strong colonies that produce but a small surplus. Such colonies are usually great swarmers.

2. A colony of average strength may produce good results, because the bees live a little over the average, and such a colony will really be strong in working force while only fair in young bees.

3. A colony may be of average strength, and produce an average crop of honey because the death rate may equal the rate of increase, thus striking a balance.

Now, you scientific queen-breeders, get your thinking-caps on. How about the very prolific queens that produce a long-lived working force? It is my opinion that they are the ones that produce the big honey crops, and at the same time the swarming average is low. While this theory may be entirely wrong, yet the conditions exist just the same. I have made this a subject of careful observation for years in my own apiary as well as those of other beekeepers. My duties as inspector of apiaries for the State of Pennsylvania took me into several hundred apiaries last summer, and the remark was frequently made by the beekeeper that certain colonies, perhaps the strongest in the yard, seemed to do very little. Investigation of such cases

proved to my satisfaction that the force consisted largely of bees too young to work in the field. Where was the older force? Only one answer, it seems to me.

It is also a matter of observation that both our second and third propositions are true. If this theory is correct, then there are bees that excel in length of working days, while others die comparatively young. But now some fellow will jump to his feet and try to spoil all this pretty theory by stating that a bee's life is only as long as its wings will last. Even so, may not the hardy bee with strong flight have wings that will outwear those of the less vigorous? This argument will only strengthen the theory of a longer fielding period.

This may sound like foolishness to our scientific men; but the conditions that I have mentioned stand, nevertheless, and I for one would like to know positively the reason for them. For a number of years I have been of the opinion that this matter of longevity is of prime importance; in fact, I will have the temerity to state that I believe it to be the most important factor in beekeeping—more important to the honey-producer than races of bees, color, or length of tongue. I am inclined to think that many beekeepers of this country believe in this same theory. Why not work it out!

AN OPEN LETTER FROM E. R. R. IN THE FIELD ; CONDITIONS IN SOUTHEAST FLORIDA.

AFTER spending three weeks on the West Coast in the vicinity of Bradenton I made my way to the East Coast, particularly the southern portion, which I had never visited. The West Coasters claim that they have the better side—better farming land and fewer mosquitos and sandflies; that the East Coast has been overboomed by the real-estate agents. While I had previously visited the upper part of the east side I was curious to know if the indictment of the West Siders were true. After having visited both sides I am reminded of the kettle calling the pot black. In many respects there is no difference. There are the same real-estate agents, good and bad; the same kind of land, good and bad, and the same kind of mosquitos, sandflies, and bugs, all teetotally bad; but, fortunately, they are not bad all the time and in all places. If one buys land near swamps or stagnant water he must expect mosquitos in warm or hot weather; but even then their depredations can be very largely mitigated by screens; and during the middle hours of the day they are not troublesome outdoors in the cities and towns, either on the East or West Coast.

After having visited practically the whole of Florida I have come to the conclusion that there is no county that has more good land capable of growing oranges and garden truck than Manatee Co., on the West Coast. I might make an exception in favor of the Everglades; but this section is as yet an unknown quantity. There are some long narrow stretches of good garden land along the canals and rivers on the southeast coast. Of these I shall speak later.

BEES AND GOOD LAND.

But you say, "What has all this garden-truck land to do with beekeeping?" Very much. Bees will not thrive where the soil is poor. Mark that down strong. For example, the saw or scrub palmetto, one of the principal sources of nectar in the State, will not yield honey of any account on poor land. In order to make the keeping of bees profitable, the saw palmetto should be three, four, and (better) six feet high. Land that will grow it as high as that will also grow the gallberry and the pennyroyal; and in some sections near the streams the black mangrove, the ty-ty, and the tupelo. Locations that will not show a vigorous and a heavy undergrowth should be avoided.

OUR CRUISER TRIP DOWN THE EAST COAST.

Mr. W. A. Selser, who spends his winters at Stuart, Fla., engaged for our party a 40-foot gasoline-cruiser so that we might the better study beekeeping conditions from Stuart to Miami. I will not at this time go into details of the big fish we did or *didn't* catch; of the places where I stopped and took notes and snapped the kodak, as these will be given in these columns later with the pictures. Mr. O. O. Poppleton, the most extensive and successful migratory beekeeper this country has ever known, was our guide for a part of the distance. What he doesn't know about this most southerly bee territory in the United States is not worth recording. I had an exceptional opportunity to interview him and others along the route, and, more important, stop our boat and see the territory under consideration.

Another member of our party was Charlie Repp, of the famous Repp Bros., the great apple-growers of New Jersey. The Repp boys are authorities on the relation of bees to apple-growing from the standpoint of the fruit-grower. Of course, I interviewed Charlie, and, as the newspaper man would say, he gave me some "good dope" that I shall give to our readers. I say "Charlie," for that exactly expresses the kind of genial good fellow that he is. Then we had Mr. Selser and wife and Mr. Gray and wife; and last, but not least, captain (the owner of the boat and a friend of Mr. Selser), Dr. F. S. Slifer, of Philadelphia. He is not only a physician of standing, but somewhat of a naturalist, although he might demur at the last-mentioned title. Mr. Gray and wife were old college mates, and Mr. Selser and wife, of course, need no introduction. To say that the trip was enjoyable is putting it mildly.

As a preliminary statement to what I shall say later concerning this trip I may add that Southern Florida is not a paradise

for bees. While a comfortable living can be made, it has come to be largely a matter of the survival of the fittest. Only the "stayers" are in the field now. Some think they would have made more money north with their bees; but they had to move South for the climate, which Florida surely has, whatever we may say about the land.

OUR BEES IN APALACHICOLA, FLORIDA.

The cold weather in the North, with the spells of frost and freezing in Florida, even as far south as Palm Beach and Miami, made me fear what might happen to the success of our experiment in making increase from our 300 colonies on the river. When I saw how the tomato-plants by the acre had been frosted down in Southern Florida, and read of the freezing weather in the northern part of the State, I began to wonder if the cold would not kill off the ty-ty and the willow, upon which we were depending for our pollen and nectar for early breeding. If breeding at this stage should be stopped it might practically put a quietus on the whole proposition. Late letters from our Mr. Marchant in charge showed that, while hopeful, he was not sure that he would escape trouble.

It was with some trepidation that I took the train northward after leaving the cruiser. I scarcely dared ask Mr. Marchant, on arriving at Apalachicola, what he knew. Greatly to my relief he met me with a reassuring smile. "We are going to get there yet. The cold—yes, it has put us back; but the bees are busy on the willows, and have just begun on the black tupelo. The cold weather has held back the black tupelo so that it will come more gradually."

This will build up our colonies better than if the flow were faster. Mr. Marchant thinks the black tupelo will last two or three weeks. This will be followed soon by white tupelo, which is the main source for honey here. Yesterday I visited the yard and found about 100 colonies with upper stories, and queens in both; and there are many more that will soon need upper stories. All conditions so far, in spite of the previous bad weather, point to a good yield from both tupelos. It is not wise to count our chickens before they hatch; but we feel that the venture is going to be a success after all.

There is one thing I did not count on; and that was that a freeze in Northern Florida does not begin to do the damage that a frost does in the southern part of the State. It transpires, then, that, beyond the loss of time when the Apalachicola bees could not fly to gather pollen or nectar, little damage was done.

Apalachicola, March 17. E. R. Root.

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Stray Straws

DR. C. O. MILLER, Marengo, Ill.

SPEAKING of the best time to cut bee-trees, if the bees are what you are after, cut in fruit-bloom; if you care only for the honey, cut in fall—the earlier the better after the flow is over.

"THERE is no doubt that the Italian bee does not excel as a 'comb-honey' bee," says L. S. Cranshaw, *British Bee Journal*, 79. They don't do so bad for me, L. S. One colony of three-banders last year gave me 390 sections—nice sections too.

G. M. DOOLITTLE says, p. 167, it's better to bring bees out of the cellar a little before soft maples bloom. "In this locality" I never yet thought soft-maple bloom too late for bringing out bees; but once or more I have thought it too early. Still, I may be wrong.

IF you want to provide a watering-place for bees so as to keep them from being troublesome at pumps, watering-places for horses, etc., be sure to do it *early*, before any habit is formed. After they have once started at the wrong place it's almost impossible to change them.

YOUNG FELLOW, let me hand you a piece of advice that will be worth dollars to you if you follow it. Lay your plans right now to keep close tab on every pound of honey each colony stores this season. Then you'll know which to breed from, and which queens to replace because poor.

JOHN E. ROEBLING, p. 232, pardon me, but I don't believe that your clipping queens in late spring has a thing to do with prevention of swarming. For many years I've clipped at that time all queens I could find with whole wings, and so far as I observed they swarmed as much as those clipped at other times.

THE question is asked, p. 232, whether "heavy nurse bees" in a removed colony would "train down and become field bees or remain nurse bees to the end." There is such a thing as bees continuing nurse bees beyond the usual time, but only where there is a scarcity of young bees. In the case in question, some of the nurses would become field bees in 24 hours, some in 2 days, 3 days, and so on, until at the end of about 16 days all would be fielders.

C. S. NEWSOM, p. 181, says, "The bees that cluster on the outside of the hive are mostly young ones hardly able to fly," and ye editor says. "The cluster outside may be composed of field bees largely." Those two

views are a long way apart. Some of you wide-awake young chaps watch next summer, and tell us which is right, or whether the truth lies between. [What we intended to imply was merely that the bees clustering out may be old bees or young bees, or bees of mixed ages.—ED.]

HASN'T "The Outlaw" struck on a rather original way of getting wax, p. 223? At any rate, it looks good. I know it's the case in my supers that, when a section is not entirely filled with worker foundation, the bees are about sure to fill the vacancy with drone-comb, and I'm likely to find that drone-comb held open for the queen to lay in. Allow no drone-comb in the brood-chamber, and use a queen-excluder, and there ought to be a fair chance for the finest virgin drone-comb.

REPLYING to your question, p. 205, Mr. Editor, I mean that European foul brood is a blessing in the way of eliminating the careless, haphazard beekeeper. As to the other part, I don't care to say much, for I believe it to be to the interest of beekeepers in general to introduce best Italian blood to help fight European foul brood. Nevertheless, I must say that in my own apiary I am not sure there is any distinction between darkest and lightest bees. My bees are now mostly Italians, but European foul brood has not made them so.

I WISH George M. Huntington had given us fuller particulars, p. 215. He says by time of alfalfa bloom strong colonies have the queen crowded for room in the brood-chamber; but he doesn't say whether supers are on or not. Unless his bees do differently from mine there will be no crowding of the brood-chamber with supers on. If no supers are on at this early time, and the brood-chamber is clogged, then extracting will give the queen room. Later, when the full flow is on, I have given empty combs, only to have them promptly filled with honey. When Alexander talks about extracting in May or early June the supers are not yet on, and then clogging with honey is fatal to best results. Answering the question whether extracting two or three frames from the brood-chamber would stop work in the supers I would say that *early* it will interfere not at all; later, in the full flow, as I have said, the emptied combs will be filled with honey, and, of course, that would interfere with super-work, at least temporarily, for later it may be that the brood will crowd out the honey.

Beekeeping in California

P. C. CHADWICK, Redlands, Cal.

March 10—no rain since Feb. 21; surface getting dry; weather very warm; oranges blooming, and sage in places showing much bloom.

Never in all my experience have I seen so much pollen stored as now. Many of my colonies have two full combs at the present time.

Hived my first swarm to-day, which is the earliest I have ever had the pleasure of capturing a stray. The colony from which it came must have been an exceptionally early breeder.

The recent heavy rains brought to most of us only joy; but some of our bee-men lost heavily of hives and fixtures. In the aggregate several hundred colonies were washed away, and I should not be surprised if the entire loss would run into figures of more than a thousand, if all were reported. M. H. Mendleson and J. D. Bixby were the heaviest losers of full colonies. Mr. Bixby lost 125, Mr. Mendleson something like 100.

I wish to announce that I am no longer connected with the exhibit committee of the State Association. I am also informed that chairman M. H. Mendleson, of the committee, has decided to withdraw. It is with much regret that I announce my resignation; but opposition to our plans, working privately, as well as through the *Western Honey Bee*, has forced me to the conclusion that with such opposition our efforts could not overcome the prejudice engendered.

There are some peculiar features in connection with our semi-desert plants. One of these in particular I noticed the past year. Much of the wild alfalfa was killed during our freeze in January, 1913. There was very little of it in this locality that ever showed a green leaf during the entire spring and summer of that year, though many of the stocks seemed to contain life. Our recent heavy rains and warm sunshine have caused fully half of it to revive with the most luxuriant growth I have ever seen.

Mr. J. T. Bowen, page 152, takes another "stab" at my opinion on the color of alfalfa honey. I wish to say to Mr. Bowen as well as to all others who have written regarding the matter, that I am studying this

question of the color of honey; and while I may be wrong, it must be proven to me that I am. I know the tendency of the average beekeeper to judge the source from which his honey-flow comes far too well to back down on this proposition simply because I am opposed. We have the same contention about sage and other honeys in my locality that I consider as having been arrived at by immature observation.

We are face to face with the earliest season for years. Our winter has been a most unusual one in many respects. We have seen very little trace of frost during the entire winter, our rains have fallen in great storms covering a period of a week to ten days with very heavy precipitation, after which the sky clears and the warm weather continues. The oranges are beginning to bloom abundantly, and within two weeks will be in full bloom if the warm weather continues. The sage is from four to five weeks earlier in this locality than usual. I have never seen bees build up so rapidly from a small start as has been the case this season. They have come by leaps and bounds; but for all their speed they are yet behind the season. I am informed that things are not quite so advanced near the coast.

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GREAT LOSS OF BEES IN THE PAST YEAR.

The loss of bees during the past twelve months has been quite heavy in many sections, while other parts have fared better in this respect. The chief trouble in this section has been the lack of stores; in other places it has been black brood. In this connection I quote from a letter of F. C. Wiggins, of San Diego:

The bee-men that I know hereabout all report great losses of bees owing to some disease, the same as destroyed nearly all of my own in 1907 and '8, I think. The hives would be found empty of bees with plenty of honey. One of my neighbors has a bee-ranch at Dulsura, and he has only 41 colonies left out of 120 last summer. Another in the same section lost all but one out of 50 colonies. Mr. G. F. Hedges, of Linda Vista, said he thought he would not save over ten or fifteen per cent of two apiaries of about 300 colonies. A few that I have at present all came through, and are getting honey from some sources so fast that I put on comb supers yesterday.

Conditions seem to be a great deal as they were in the spring of 1905, so far as the loss of bees is concerned; and if we should obtain a heavy yield the loss of bees would prevent a very great overproduction at best.

Notes from Canada

J. L. BYER, Mt. Joy, Ontario.

Are you joking, Dr. Miller, when you say that "on this side it is a rarity for bees to work on the second crop of red clover"? page 125. Nothing rare about it here in Ontario, as, on the contrary, it would be a rare thing indeed to find a field of second-crop red clover without *some* bees being on the blossoms. But it is a rare thing to find them doing enough to show any results in the supers. Only two or three times since I have been keeping bees has this happened.

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The March 1st issue is practically a "city number," and this leads me to remark that the average country beekeeper has no idea of the number of colonies kept in some of our large cities. Toronto, right near me, with a population of over half a million, has a great number of bees inside its limits, as I learned when doing inspection work a few years ago. From the standpoint of disease, our city brethren have more to contend with than we have, as there may be bees within a short distance, and yet they may know nothing about it. This is not insinuating that the city beekeeper is necessarily not as well informed on the disease question as his country brother, for, on the contrary, I know many of them who are up to date, and hustlers in every sense of the word. But *one* beekeeper exposing foul brood in the city may do much more harm than if he were in the country, for the simple reason that very few may know that he has bees, and damage may be done to neighboring apiaries while the proprietors have no idea of the source of infection.

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Under date of Feb. 10 I wrote that winter here in this part of Ontario had been above the average in temperature. An old saying is that "it is never safe to whistle till you are out of the bush," and it holds good in the present instance. Since that date we have had a whole winter's cold in a month, as for three weeks in February the weather broke all records for our locality. At our home here in York Co. the thermometer said 30 below on two different occasions, and for two weeks at a stretch it was never above zero in the morning. At the yard 100 miles north of Toronto, where over 300 colonies are wintering outdoors, it was very much colder than here in York Co. Three days in succession it was 43, 37, and 33

below respectively; and for the whole month of February only five mornings registered above zero. Results there will answer the many who live further north than I do, who, the past fall, asked me if I considered wintering outdoors would be safe for them to practice. No report has come from this north yard for the past three weeks; but I am not worrying much about the bees, for all that; for, notwithstanding the unusual cold, I am not expecting a heavy loss. The bees up there had a partial flight Nov. 23, and as it is cold to-day (March 9) it looks as though they will have had a steady confinement of four months at least before getting a chance to fly again.

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PAINTING PAYS.

Regarding the matter of painting hives, as discussed by friend Doolittle on p. 842, Dec. 1, I might say that his claims as to *economy* of painting being a "myth" don't appeal to me a bit. I am not prepared to argue the question from the sanitary standpoint as applied to the health of the bees in painted or unpainted hives; but, honestly, I have no fear of the painted hives doing my bees any injury. But as to paint being a wood preservative, it seems absurd to me to try to prove otherwise. The oil in the paint is the main thing; and it takes little experimenting to prove that oil-soaked wood will not soak up water like unpainted wood; and moisture in the material is the main cause of decay, as I understand the matter. Great corporations like our big railway companies, etc., certainly think that paint pays from an economic standpoint; and business interests of that nature seldom make mistakes of that kind. While I have a few hundred painted hives I also have a few hundred unpainted ones, so the above is written from an unbiased position. The unpainted hives always give me a feeling of reproach whenever I look at them, as I feel they are not a paying proposition, to say nothing of other disadvantages they may have. We have double-walled hives sheeted on the outside with half-inch stuff that were made over 30 years ago. They were well painted at that time by my grandfather, and are to-day in fair condition. Others, made about 15 years ago, and not painted, have the sheeting all curled up and split at the ends in many cases. Certainly painting would have paid in this case.

Beekeeping Among the Rockies

WESLEY FOSTER, Boulder, Col.

BOTH SIDES OF THE SPRAYING QUESTION.

Yes, we have it in our Colorado law that spraying fruit-trees while in full bloom is a violation. It is this way: The clause dealing with the subject is inserted in the law relating to bee-diseases, otherwise known as our foul-brood law. A number of years ago a clause with the same substance was inserted in the horticultural law, and remained on the statute-books for several years, and did a great deal of good. Then when the horticulturists wanted a new law they drew up a bill and thoughtlessly left out the clause regarding spraying. This is only natural, for the fruitmen could hardly be expected to have the bees in mind all of the time. Perhaps the thoughtlessness was on the part of the beemen in allowing the subject to be passed over in that manner. But that is what happened, and the majority of Colorado beemen went blissfully on nursing the belief that they had protection from spraying in fruit-bloom.

A fruit-grower who has a large orchard, to get over it all in time, has to begin the spraying at the earliest date so that results may be secured. Suppose he begins when the petals have just begun to fall—what will be the result? There are many bees in the trees working on the blossoms. Suppose he does kill most of the fruit by his spraying that is not yet fertilized. There is generally enough already fertilized to furnish a crop, and the work of thinning will not be so hard. This is an argument often made by intelligent fruit-growers—men who keep bees of their own, too; and some of them have knowingly poisoned their own bees, saying that it is better for them to buy bees every year and bring them in to be in turn poisoned than to delay the spraying. There are so many belated blossoms that some bees will be killed any way.

Different spraying methods and materials are continually being tried, and new pests of the orchards are appearing, so that the lot of the beeman is a hard one in a commercial-orchard district. My candid opinion is that the beeman had better keep out of the commercial-orchard districts. At Canon City two years ago the leaf-roller threatened the orchards, and spraying was recommended and done throughout the blooming period. It killed bees in large quantities, and did no good to speak of in control of the rollers. But another method of control has been found to be sure, so that the beeman need fear nothing from leaf-roller spraying.

The recommendations of horticultural authorities are generally to begin spraying for the codling moth when two-thirds of the petals have fallen. If this is followed, will not a good many bees be killed? And then how many fruit-growers can tell when any proportion of the petals have fallen?

Another trouble from spraying comes when the later summer and fall sprayings are applied to kill the later hatches of the codling-moth worm. Cover cropping is now quite generally done—alfalfa, sweet clover, alsike, and white and red clover being used. The bees working on the bloom under the apple-trees that have been sprayed sip the poisoned nectar from the blossoms, carry it home, and poison the brood and young hatched bees in the hive. New swarms hived in July have perished in two weeks, and many desert their hive precipitately.

In some sections of the fruit-growing West the belief still is held by some prominent fruitmen that bees are at least partly responsible for the spread of pear-blight. Some hold to the proposition that, if the bees were all moved out of a district, the spread of pear-blight could be controlled. The sentiment is strong enough in some places to attempt this if it were not for the difficulty of getting rid of the wild bees and also the difficulty of persuading the beemen of the truth of the proposition. I rather think that the fruitmen are not all of one mind on this question in any place.

A law to control the spraying of fruit-trees during blooming time is a hard one to enforce. It is a potent factor in the more pronounced cases, and I am in favor of a law; but a frank recognition of the difficulties, and a campaign of education by the beemen, will do much good in getting the fruitmen to follow the spirit of the law.

The beeman is safe enough if he is located in an orchard country where little spraying is done, as then the nectar from fruit-bloom will be a fine stimulant to the bees; but when the arsenate of lead comes along with the blooming of the trees he must look out. He may have nine neighbors who will follow the rules closely enough so that they will do no damage; and one neighbor by spraying a few days too soon will undo it all. And if the beeman is busy, he may never find out who that neighbor is. If he can find out in time, it can be stopped if there is a law in the State; but suppose the one man can't be found till after the damage is done. The average man pockets his loss, and does nothing.

Conversations with Doolittle

At Borodino, New York.

A BIT OF HISTORY.

"Do you practice line breeding, or do you breed by getting in new stock from other yards?"

A quarter of a century ago, instead of "line breeding" the term would be, "Do you breed all your queens from *pure Italian stock?*" a question which, in those years, was asked me scores of times. My answer invariably was, "No;" and then I had to explain that, according to my views, there is no such thing as a *pure Italian bee* or queen when viewed in the sense of a pure race, as the German or black bee is pure. At the best, I think the Italian bee is only a thoroughbred. Proof of my views is found in the fact that Italian bees vary from those coming from Italy which are so dark (a part of them) that they are hardly distinguishable from the German bees, to those from some breeders whose abdomens look almost like a "lump of gold" when sporting for the first time in the noonday sunshine. If the dark or leather-colored bees are pure, with their three bands scarcely distinguishable, and then only when the bees are filled with honey, what shall we say of those Italians whose five segments are a solid golden color with only a dark tip on the sixth?

We have, as a starting-point, a bee which, through hundreds of generations, penned in by the mountains of Italy, became established as a *variety* which proved to be superior to any thing the world contained elsewhere, which bee was imported to the United States about the middle of the last century, father L. L. Langstroth being one of the first importers. From the progeny of this Langstroth importation, Mrs. Ellen S. Tupper advertised queens. We sent \$20.00 for one of her best queens. This queen was of a light chestnut color, the whole length of her abdomen, and gave workers and a queen progeny above any thing previously coming into central New York. About 1873 or '4 we sent \$10.00 to H. A. King, Nevada, Ohio, for one of his best Italian queens. In this queen we had something bordering toward the orange, which gave bees with three bands that showed a chestnut-golden color, distinct enough so that all were to be seen without their being given honey to extend the abdomen, as was claimed necessary with imported stock to test their purity; and in this King queen we had bees that gave an average yield of comb honey 10 per cent above any thing before known in this section.

About that time, Mr. N. N. Betsinger said that he would rather have a certain colony of mine for honey production than any colony he ever looked at before. Later on I went to breeding from this queen. Her bees, and those from her daughters, readily outdistanced all the others in the yard for comb honey.

About that time I exchanged queens with Jos. M. Brooks, a noted beekeeper of Columbus, Ind., and through this exchange I not only added to the golden color of the bees I had already, but gained a point as to honey production and white cappings.

During the latter eighties I exchanged queens with Mr. L. L. Hearn, of Oakdale, W. Va., who was a noted breeder of "the best Italian bees" of those days, both of us claiming that, by this exchange, a gain would be made along all the lines necessary for the best bees. Since then I have made several exchanges; but as none of these seemed to make any advance over what was already in the home yard and at the out-apiary, they were discarded without mixing them with what I already had.

In the mean time nearly all the bees in this section have been changed from the blacks and hybrids of the past to good Italian stock, very largely by furnishing, with ripe queen-cells, free of charge, those who would come to the yard.

To further these Italian bees still more, drones from one of the choicest breeders have been kept till other drones were killed off, when queens from another best breeder were of the right age to mate with them, and in this way an improvement has been made. In a year or two, queens would be reared from the drone side, and young drones saved from the queen side.

To get at the longevity part of the matter, as well as to prove some other points, also to prolong the life of the queen in question, an extra choice breeder would be taken from her colony in early June, and a queen giving different-colored workers put in her place. In this way it was easy to tell when the last of the breeders' bees passed away. Making a change in this way the first of August, bees from the breeder I was then using were found to quite a number on July 4 of the next year, but none the tenth, six days later.

Now, I do not know whether this would be called "line breeding" or something else; but I have given the bit of history telling the source, and way used, to bring our bees up from where they were in the early seventies.

General Correspondence

WHAT IS A GOOD QUEEN?

The Fact that Colonies Vary Proves that Improvement is Possible; Choosing a Strain Adapted to the Locality

BY E. S. MILES

The quality of our bees is the foundation of our success. If one is to build a permanently successful business it is my belief that he must have a good strain of bees—one suited to his locality and methods; and the better the bees, the more successful the business, other things being equal.

The writer noticed, many years ago, that there is a great variation in bees; that they are no exception to the rule of variation that the close observer sees in all the animal kingdom.

If you want bad stingers you can find them; if you want those that swarm every favorable time—if you want those that seldom store much surplus, you can find them; and the wonder is that, under our present haphazard hit-or-miss, go-as-you-like way of breeding bees, they are not worse than they are.

But, of course, the hit-or-miss way does hit part of the time; hence *some* good colonies among almost all strains. When I say *good* colonies I do not mean strong ones; but I mean good ones from the viewpoint of the honey-producer.

If I were a nature student only, and interested in bees only as a study, I should be, perhaps, as much interested in a poor colony (from the honey-producer's standpoint) as in a good one. But I am speaking now solely on the utility of the bees for honey production.

In bees we see then, I say, a great variation in characteristics. Some have undertaken to deny this, but have simply advertised their own lack of powers of close observation or their lack of opportunity. This variation is the breeder's hope for better things. True, it will lead nowhere if not followed intelligently, and that is true of the hope of any thing better in any thing in the world. But first, we must know what we *want* in the bee—what traits to look for—before we start selection for any thing in particular; and I wish to go on record as claiming that one should have bees adapted to his own locality. A good strain developed in another and a different locality *may be* all right for yours, and then, again, it may not be.

There is a great variation as to how they

breed before, during, and after the flow; and the character of your location as to the number of flows, and when they come, determine when and how much you want them to breed for best results. And here I wish to remark that, in my estimation, there are two popular beliefs that do more to hold back the improvement of the bee than all else put together unless we except the old sin of neglect. These are, the belief that the more prolific the bees the better, and that queens reared under the natural-swarming impulse are the best.

I do not wish to speak for other than a white-clover or basswood locality, having had no experience with any other, and I am *not* of those who teach from other men's experience; but under that head I wish to state, as positively as I can make it, my dissent from these errors. Let us look at the bees as though their characteristics were habits. Let us say they have certain habits. One strain has a habit of swarming; another of not breeding strong in spring; another of not living through the winter; another of *not* swarming so long as they have a chance to store up honey; another of capping and building beautiful combs; another of making "greasy" cappings, etc. All experienced bee-men have seen bees with all these "habits" and many more.

If we look carefully into these "habits" it will surprise us to find how many of them are linked together, or connected, one being a natural sequence of another, so that, if we avoid one, in some cases we also avoid another or more; and if we like *one*, and choose it, we may get another that is desirable along with it. Mind, however, that I do not say, "If you get one good habit *all* others are good;" for sometimes *two* good habits are the result of one cause. Now, when we come down to selecting, the real difficulty begins; for what two men see alike? What two men would both choose the same colony for a breeder in any certain yard? Yet in every yard of bees there is a *one* best one for breeding purposes if we could know it; and the man who does know, or comes nearest to knowing, every thing else being equal, will produce the finest strain of bees.

Right here, perhaps, some one will say, "Why, take that colony that gives the most honey, of course."

Yes, that's *one* test, surely; but what of (as we have heard of cases) a famous queen whose daughters none of them come up to her? In that case, evidently, we are on the wrong track *unless her daughters are above the average quality we can obtain from any other breeder*. But there may be other colonies not nearly so large surplus producers that may produce daughters more uniformly good producers. This can be explained on the supposition that the queen of the large-surplus colony may be a grade or mongrel in a very slight degree—so slight that it is noticeable in no way except through her progeny; or if not that, the mating is not the proper "nick," as stockmen say, to perpetuate all of the good qualities. Unless I am mistaken, it is *not* always the very finest and most perfect specimens among our domestic animals that produce the prize-winners and sweepstake getters, but certain strains mated in a certain way. As I understand it, the breeder is continually on the lookout for a sire or dam which will produce prize-winners, or specimens nearest to perfection.

What a howl of misunderstanding goes up when one mentions an "improved bee," a "non-swarming bee," or a "red-clover bee"! The wise one quickly says, "Let me take your non-swarmers, and I'll make 'em swarm the first good season." Why, bless your poor misunderstanding heart, I can take the finest thoroughbred cow and make her as worthless as any scrub in a year, and her progeny *scrubs* in four or five years or less. No one expects to reach perfection in a few years, nor expects to hold it, if ever reached, without his best efforts. There is a vast difference, my brethren, between "going on toward perfection," whether we ever "attain" or not, and leaning back on the traces and saying, "No use, it can't be done." If you won't do any thing yourself, my brother, in Heaven's name don't try to hold back the ones who are trying.

But to go back to our subject, I wished to call attention to a few of the habits that, according to my experience, appear to be related: The trait, or habit, of prolificness, and the swarming habit, go together. In other words, if you want *swarmers*, select very prolific strains of bees; but I have not been able to get the honey-gathering habit very strong in these extra-prolific strains. I do not say it can *not* be done; but all those I have had have not been *honey-gatherers* as compared with those with that habit. There are strains, however, of the

Italian bee that breed fairly well until a heavy flow comes, when their strong "habit" of honey-gathering takes possession of them and they bend every energy to storing honey, even to the point of almost stopping brood-rearing some of the best days. These are the bees to get our non-swarmers from, and I have yet to find a colony slow to swarm that was not a good honey-gatherer.

The point to decide and establish is, "How strong do we want this honey-storing habit, and not have it overdone so our colonies will not keep up proper strength for later use?" If I were running for extracted honey altogether, I should not fear overdoing the matter at all; but for section honey it would not do to have bees that fill the brood-combs too early in the season (the same bees that do this will not do it with plenty of built combs), as in extracting.

My idea of a bee for this locality (white clover and basswood) is one that must be hardy, so as to winter, of course, and just prolific enough to fill the hive fairly full of brood by the clover harvest; but they must have the honey-storing "habit" so strong that they fill every thing with honey before they swarm. Then I make it my business to see that they have plenty of room, so that they never reach that stage.

Some one will say, "Yes, sometimes they will fill every thing, and then, again, they'll swarm with lots of empty comb." True, my brother; true enough, if you are talking of bees bred "hit or miss," "promiscuous like," as most bees are; but that is not the kind I am referring to. I say you can, by selection, breed bees that will do as I suggest, if you can select the right ones to breed from. Why, how many times have I had people ask, "Had any swarms yet? I had a fine swarm to-day," and I would say, "If I had a colony that would swarm at this time of year I'd pine the queen's head off." The party would look at me as though I were a freak, and just delighted in odd sayings. Yes, if you breed "hit or miss," as by natural swarming, you will have some freak colonies that will swarm, apparently, just to pass the time, and when they can not get enough to live on.

It is possible to have a strain that will gather a good living right beside these worthless freaks, and be building up slowly and steadily, and be ready for the crop, without much attention, when the hit-or-miss kind will surely *miss* unless you watch closely and feed; and even then the chances are for *swarms* later instead of honey.

There is a laughable illustration of this in the bee world to-day. The writer urged breeding a bee more for honey-gathering

and less for swarming, some years ago, and gave a record showing a very small percentage of swarming. A certain writer would not hear to the idea that the bee could be improved, but claimed that a bee is a bee, always was, and always will be the same, and that it is only through the ignorant imagination that unlearned men claim a better bee than those commonly found through the country; but now this man is announcing that he has lost about all his bees, owing to there not being enough nectar for brood-rearing, and that he has given up the production of section honey owing to the appalling number of unfinished sections. The writer kept bees for years within five miles of this man's location; is well acquainted all through his neighborhood, having grown to manhood there, and knows both from observation and personal experience that the locality is practically the same as here; yet we have produced, during these same seasons, good average crops; have increased the number of our colonies each year, and have found the business profitable right along, both of extracted and of section honey. If this is not an argument for an improved bee, then pardon me for relating it, as that is my only purpose.

Now a word about red-clover bees. I have never had bees from the advertised red-clover strains; but, listen: Two seasons out of the past seven these "improved" or select-bred Italians have given me a nice surplus from red clover, one year storing clear white honey at the time that common hybrids right beside them stored dark honey-dew.

A little is also due to the old-fogy notion that natural-swarming queens are the best. Whoever contends thus has not tried both, or else he does not know how to rear queens outside of natural swarming. If there is

one thing I have learned, and am *sure* of, it is that I can have *better* queens by artificial methods than by swarming—not only because I rear them from the stocks I like, so as to get the "habits" I want; but I can not get as good queens from these same stocks if reared in swarming colonies. This is something I can not explain; but I think the *disposition* of the colony nursing the young queens may possibly be imparted to the young queens to some extent. I am thoroughly convinced that, to improve and hold the improvement permanently, we must breed our queens in colonies that have no desire *except* for a queen, and possibly when their energy is devoted to honey-gathering, as in a good flow.

I would not give a fig for all the improvement gained in 100 years by natural swarming, however managed. Such a plan is out of date; it is a back number, and every progressive and wide-awake honey-producer can do better without it. He can handle more bees and raise more honey with the same labor without; then why not get rid of it?

Breed it out! Breed it out! It isn't the fellows who have *tried* who say it can not be done, but it's those who have *not*.

If you don't want swarming, don't breed from swarming colonies nor use them for cell-building. And don't keep bees that tend to keep an extra-large amount of brood through the flow, as, one year with another, they will not pay as well in a clover or basswood location, and they will make more labor by swarming.

This is so large a subject that it is difficult to treat it in one or even two articles; but this is given in hopes of giving cause for thought and discussion.

Dunlap, Iowa.

THE LACK OF A STANDARD OF MARKINGS TO DETERMINE THE DIFFERENT STRAINS OF ITALIANS

BY ARTHUR WILLIAMS

A number of years ago we began making preparations for conducting a series of experiments with the different races and their crosses, by acquiring some isolated tracts where no bees existed, and where forage was sufficient to insure success. Right at the outset, however, we met with difficulty in determining the purity of any certain race, for there seems to be no fixed standard—no uniformity of type. Every breeder, from whom we purchased queens testified to their purity, yet hardly any two would

produce bees alike; and two queens from the same breeder would show different colors and characteristics.

Last year I began trying the direct importation; but the distance here is so great that, with the present mailing-cage, it is any thing but a success; in fact, for all my dealings with queen-breeders I have very little to show but considerable expense and experience and a magnificent collection of queen-cages. I might add that, for ingenuity in inventing excuses, I believe that

queen-breeders outclass any other people I have ever seen.

I received a certain breeder's card that was sent with an untested golden that I ordered after trying tested queens with unsatisfactory results. The queen accompanying the card was a very pretty golden, all right; but her progeny are any thing but goldens—two bands are the best that any of them show.

A number of years ago Mr. A. I. Root recommended gorging bees with honey and examining them by transmitted light. Those that showed only two bands were to be called *hybrids*. Well, these bees *are* hybrids all right. This is only one instance of many. The trouble seems to be that there is no well-defined standard to breed to; and as long as this chaotic condition exists, breeders can dispose of mismated queens with impunity; and even with the most conscientious there is bound to be so much variation that misunderstandings and dissatisfaction are bound to occur.

My suggestion is that a body composed of the best representative beekeepers in the country, with The A. I. Root Company and Dr. Phillips, form a standard as to what every known race should be in its purity; then The A. I. Root Company will publish a little book with colored plates and complete description. This should be accepted as authority, and every breeder conform as nearly as possible to the type therein set forth. Then, and not until then, will there be much progress made in developing the honey-bee.

Arroyo Grande, Cal.

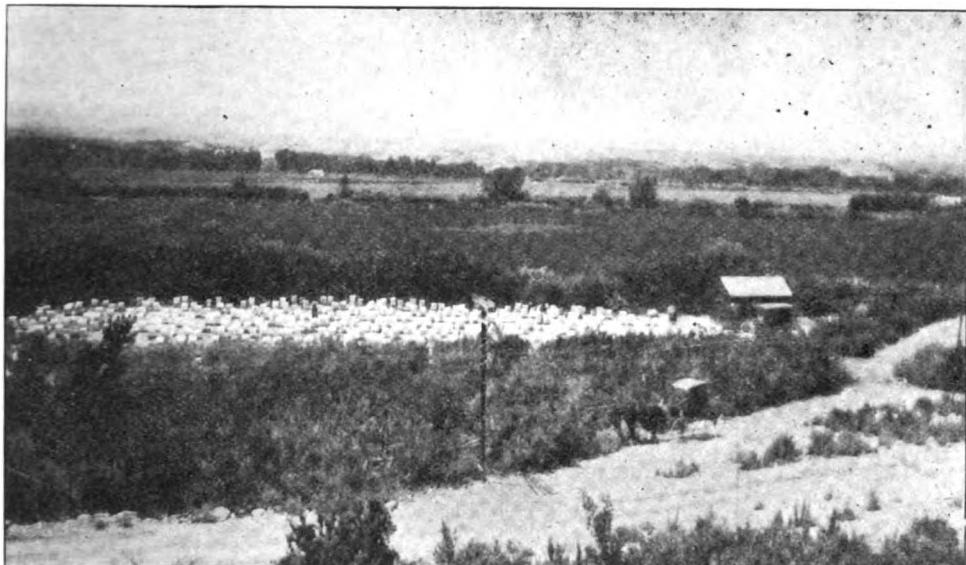
[It is true there is no uniform scheme by which different strains of Italian bees may be distinguished. A golden Italian bee may be any thing from a bright-yellow three-banded to a yellow five-banded with an occasional specimen of bee yellow all over; but we have the proof now that there are very few five-banded and yellow-all-over bees. The so-called five-banded queens usually do not show up any better than three-banded, four-banded, with occasional five-banded bees. There are those who have claimed to have all five-banded bees; but when we come to examine them very carefully it appears that the larger percentage of the bees are four-banded, with an occasional five-banded bee. For that reason we have discouraged the advertising of five-banded bees, and have recommended the term "golden." This term is somewhat flexible, and means any thing from a bright three-banded Italian to a four-banded bee. As there is such a difference in marking of

the same queen it would be very difficult to make a uniform standard; and about all one can do is to advertise golden bees and state such a queen will run such a percentage of four-banded and such a percentage of five-banded; but one can not very well advertise to produce bees running nothing less than four-banded and the majority five-banded—at least we have not seen any stock of that kind.

When it comes to pure Italians, it is generally accepted throughout that three yellow bands are the standard markings for ordinary Italian bees; but nevertheless it is a fact that bees direct from Italy will sometimes show only two bands and two bands and a half; that is to say, the third band next to the thorax is so indistinct that it does not show unless the bees are filled with honey, as A. I. Root recommended years ago. Some of the finest and best workers we have ever had have been leather-colored bees; that is to say, they had two bands clear and a third band showing indistinctly, or what might be called a $2\frac{1}{2}$ -banded bee, as George B. Howe would say.

We don't like to discourage any effort toward securing a uniform standard, because of the variation that appears in the golden Italians. In the stock that we sell of this kind, we do not guarantee any thing except bright yellow color; and as far as we ever go is to guarantee three yellow bands of bright yellow and occasionally four yellow bands. Sometimes we are fortunate enough to have stock that will run three-banded and largely four-banded, say 25 per cent three-banded and 70 per cent four-banded, and perhaps 5 per cent five-banded. Such stock we would call very bright golden, and about as good as any one could ever secure. Now, unfortunately, queens from such a queen would show bees three-banded and four-banded; possibly they would show only three bands; they might take after their father; and it is unfortunate, too, that some of these so-called golden breeders will have daughters that will show bees of only two bands. For that reason we don't like to sell golden Italians; we prefer to sell the regular standard three-banded bees that will run fairly uniform. Bees that have been bred for color are very unstable in their markings.

If any one can propose any scheme that will establish a uniform standard for all bees, we shall be glad to adopt it. Tentatively we might suggest for the leather-colored Italians, especially imported, that the standard be two, two and one-half to three bands for leather-colored and imported. For ordinary Italians, three-banded;



Mr. Harvey's apiary at Montrose, Col., spring count 200; fall count, 280. Honey crop 850 cases comb honey and 40 cases culls.

for Goldens, three-banded and four-banded. It would be a great deal better to make the standard a little *under* what the bees will probably show than to make it too high.

When the standard calls for too much, the stock itself will be liable to fall below it, and this will cause ill feeling and complaint.
—ED.]

SOME BEEMEN I HAVE KNOWN

M. W. Harvey, Montrose.

BY WESLEY FOSTER

Once in a while we meet a beekeeper whose careful, painstaking, methodical ways stand out in bold relief. Such a beekeeper, when found, will generally be quiet and unassuming, and one who has to be drawn out by questioning. He will rarely speak at conventions, and, unless asked, will not tell of the methods used in his beekeeping practice.

Such a man is M. W. Harvey, of Montrose, owner of 700 colonies of bees all in well-painted dovetailed hives located in apiaries of methodical arrangement with a well-built honey-house at each outyard. He drives a Ford touring-car, and has had the least expense for upkeep of any automobile I have heard of. Mr. J. C. Matthews says that Mr. Harvey never drives faster than 10 miles an hour. I asked Mr. Harvey what he thought of the Ford, and he replied that it was the best-built car, regardless of price, and he spoke as though he meant every word. His words have a peculiar power of carrying conviction, probably be-

cause, when he does speak, he speaks out of his experience. He will not give *you* his opinion on any thing. If he does not know he will tell you so—no “guess so” or “perhaps” about it.

Mr. Harvey, contrary to the practice of most beekeepers, does not keep any bees, fixtures, or appliances at home. If he does he had them all out of sight when I called. Every thing is kept in the houses at the outyards, and the home place does not betray his kind of business. From all appearances Mr. Harvey might be a retired farmer, a business man, or a professional man with his office over town. The same order is evident about his neat home that is shown at his apiaries. His methods of honey production have been reduced to a system by which he has been able to obtain higher averages per colony, with a better quality of honey, than his fellow beekeepers. He told me that any beekeeper following the same system, and working as thoroughly as he does, can have the same results. There



Closer view of Mr. Harvey's apiary, showing the way western producers take off honey during a good flow. A few of the bees are smoked out, the super jerked off, and then stood on end to allow the rest of the bees to come out at their leisure. This plan can be followed only during a honey flow.

is no wizardry about his methods unless the careful, thoughtful, methodical worker is a wizard.

Mr. and Mrs. Harvey spend their winters in California, as do quite a number of other western bee-men and families. Once a bee-man goes there for the winter he goes back year after year if the crop warrants it. He told me he had made from \$3000 to \$5000

per year from his bees regularly, although he has suffered very much from winter and spring losses and from poisoning of his bees by careless people spraying fruit-trees while in bloom. Would that we might have more bee-men like Mr. Harvey. He is helping to raise the standards of beekeeping, not by his preaching but by his practice.

Boulder, Col.

REARING GOOD QUEENS

BY R. F. HOLTERMANN

From an address given by Mr. Roy Keet, Black River, N. Y., at a convention of the Jefferson and St. Lawrence County Beekeepers

In Jefferson and St. Lawrence counties live some of the best beekeepers in New York; and the past poor season in that part of the State did not appear to dampen their beekeeping ardor in the least.

Mr. Roy Keet, of Black River, N. Y., gave the following on rearing good queens:

A good queen is, in my estimation, the most important factor of success in bee-keeping. One may be the fortunate owner of all modern equipment and still not have good queens. Good queens are as essential in the apiary as are good cows in the herd. Success depends on the quality of the queen.

It may be well to explain here what I mean by a good queen. She must be of good stock; she should be reared under the best possible conditions, which I shall name later on; she should be strong and prolific;

she should lay her eggs in a compact cluster, and not scatter them; her bees should be gentle; and in these days of brood diseases she must be purely mated. I will add further from my experience, I believe she should be a pure Italian.

METHOD OF REARING.

First, we must choose the colony for our work. This should not be a difficult matter, for this colony need not be the strongest in the yard. One having six combs of brood with plenty of bees to cover them will answer. Having selected the colony, we first remove the queen. If she is a valuable one we retain her in a nucleus for future use. Frequently, under such circumstances, I build up this nucleus into a full colony for winter. We next remove as much of the unsealed brood as possible. In a ten-

frame hive I crowd the bees down to five or six combs, and follow up with a two-inch chaff dummy. We now have the bees crowded; and, in addition to being queenless, their eggs and larvæ will also have been taken away. So we close the hive, and leave them five days to their unpleasant meditation.

Unless honey is coming in steadily from natural sources we must feed every morning and night. For this purpose I prefer an entrance feeder, consisting of a quart Mason jar, having a perforated cap or cover. I close all the holes, but two, with wax. It takes the bees about twenty-four hours to empty this jar of thin honey, and this means that it comes to them slowly like a natural honey-flow, and thus prevents robbing. On this account it is much better than feeding the whole amount at once. This feeding should be kept up until the queen-cells are sealed.

We now proceed to our breeding colony, and place a good clean worker comb in the very center of the brood-nest, where the breeding queen will be most likely to find it first. When she has laid a few hundred eggs this comb is taken out and placed in the center of our prepared queenless colony mentioned above. In three days they will hatch, and be abundantly fed. In twelve hours after they hatch they are ready to be transferred to the cell-cups.

In this queenless colony the little larvæ will be fairly swimming in jelly. If the directions have been followed closely, no extra royal jelly will be needed in the process of grafting. Lift from the cell the little larva, jelly and all, on the point of a flexible quill, and place in the prepared cell-cup. Graft fifteen of these cups in like manner, and take them back to the queenless colony. Make sure that the bees have started no other cells in the meantime. If so, cut out every one. Arrange the combs so that the frame containing the prepared cell-cups be placed between two combs of hatching brood. Close the hive, and do not disturb it for forty-eight hours. Every cell should be accepted, owing to the small number grafted.

The cells may be left till the twelfth day; then take them out and place them in a three-frame nucleus to hatch. Be very careful that the cells be not chilled, for a chilled cell will make a dark queen.

Several things must be kept in mind. First, that the queen-rearing colony is free from unsealed brood, and that the bees are crowded down to fewer combs. Contract the entrance according to the temperature, and feed daily. Create in this way a pros-

perous condition, and do not disturb the bees unnecessarily.

Queens reared in this manner are started from the egg. We do not guess at the age of the larva, for we transfer larva, jelly, and all at one time, so that the delicate larva itself is not touched. From the very start the larva is fed as for a queen in just the way the bees do it when left to their own resources. Under natural conditions bees do not feed a larva three days for a worker, then change their minds and feed royal jelly for a queen. They feed royal jelly from the very start; so, in order to rear good queens, we must do the same. Let the bees work as near to nature as possible, and thus avoid many mistakes.

Mr. George B. Howe, also of Black River, said he generally uses a strong colony for queen-rearing, and that he likes to find a colony superseding their queen, but that expert beekeepers can rear good queens without colonies that are superseding.

Mr. F. D. House, President of The New York State Beekeepers' Association, said that he prefers to crowd the bees even more than the amount mentioned by Mr. Keet above. That is, he crowds a ten-frame colony down on to three frames, taking away all brood, but leaving pollen, honey, and water. He said further that fifteen cells is a rather small number, but that such number is all right nevertheless. Mr. House feeds ten to fifteen days before queen-rearing time unless there is a natural honey-flow. This brings about swarming conditions.

Mr. Howe said that in his locality he wants the capped brood, because the nights are cooler than they are in Mr. House's locality. Mr. Keet said he wants the capped brood not only for warmth, but for providing plenty of nurse bees.

A further statement was made to the effect that the reason these bees cut out the sides of the queen-cells and consume the royal jelly, even in July, is the condition of the honey-flow or absence of the flow being adverse to queen-rearing; also dead larvæ, excitement, too much smoke, and black bees.

Brantford, Ont.

[An interesting point is raised above in the plan given by Mr. Keet—that is, whether it would be better to have the larvæ intended for queens to be transferred into the queen-cell cups with royal jelly at the very first. The whole question hinges upon this: Whether worker larvæ are fed royal jelly the first three days or not. Some of our authorities have claimed that all worker larvæ are fed royal jelly the first three days, and that they are then fed a coarser for

Those intended for queens, however, are fed the richer royal jelly right along. Whether this be the case we do not know, as it is a rather difficult matter to get any reliable

data on. If any of our readers have had any opportunity for making experiments one way or the other, we should be glad to hear from them.—Ed.]

THE STRONGEST VIRGINS MATE THE EARLIEST AND BECOME THE BEST QUEENS

BY F. A. HOOPER

Why can not all the colonies in the same yard store alike? In an apiary of, say, 300 colonies, one will find that about one-third store on an average 8 imperial gallons of honey (112 pounds each); another hundred will average about 4 gallons, and the remainder will average from three gallons to nothing. The first third we class as No. 1. These colonies, on the opening of the season, have a large force of bees ready for the field; and on examining them, the combs will be found to have evenly sealed brood and plenty of stores.

The next third we class as No. 2. These colonies, on the opening of the season, are not strong enough to take advantage of the first bloom, for they are deficient in brood, bees, and stores.

The remaining third we class as No. 3. These, on the opening of the season, are so poor that they have to be supplied with combs of brood and stores to keep them alive until they gain sufficient strength to be able to gather nectar for themselves.

These 300 colonies may have queens all reared from the same mother and under the same conditions, yet some are very much inferior to the others.

Again, suppose we make up, say, 100 three-frame nuclei, each nucleus having the same amount of bees, brood, and stores, or as near as possible. The cells are distributed the same day, and from five to twelve days all these virgin queens are mated. In eight weeks, and sometimes less, many of these nuclei will have built up to strong ten-frame colonies, while others will take

from three to four months before they become established colonies. There are others, again, that will not build up, but dwindle and die out if left unaided.

THE FAULT LIES WITH THE QUEEN.

No one, by looking at a queen, can tell for a certainty that she is of good quality. I have had them as large as a queen should be, yet they were not worth a pound of honey. On the other hand I have had queens with nothing very remarkable about them, yet their subjects stored twenty imperial gallons of honey in one season—that is, from December to the following June. From these queens I bred several, but none of their daughters proved of much value.

For the sake of experiment I once bred some queens from very inferior stock, and yet of that lot there was a couple whose bees stored over 100 pounds of honey in a season. Is there no method left untried to get all our queens to give good results?

We all know that virgin queens take from four to twelve days in mating. Those that get mated on the tenth, eleventh, and twelfth day generally turn out drone-layers, or start drone-laying before they commence to lay worker eggs. Note these queens carefully; and before the following season opens they will have died out or absconded with their little swarm.

In my opinion it is the strongest and most healthy virgins that get mated soon after hatching, and it is these queens we are indebted to for large yields of honey.

Four Paths, Clarendon, Jamaica, R. W. I.

UNIFORMITY IN QUEENS AND RESULTS NOT IMPOSSIBLE

BY G. M. DOOLITTLE

Mr. Hooper, in the foregoing, tells us something of his experience with beekeeping on that sunny island Jamaica, where there are no frosts, to say nothing of the 20 to 30 degrees below zero which we here in York State have to contend with. It would seem that there should be no trouble in having every colony in such a warm climate brought to perfection ready for any honey

harvest when it comes. But instead of perfection I find him telling of just about the same thing I used to have 25 to 40 years ago, namely, one-third of the colonies in good condition for the harvest; one-third scarcely fair, while the remaining third are "no good" so far as any surplus is concerned. And I note that he seems to think that the fault of the poorness of the last

two thirds, or of 200 out of the 300 colonies, lies with the queen. Undoubtedly this is largely true; but the stores to be used by the different colonies while in a state of repose, the age and vitality of the bees, and the location of the colonies, all have an important bearing in this matter.

Some colonies get started to work to a greater or less extent on different bloom; and where so started they will adhere to quite an extent on that bloom; and when this bloom is a long distance from the hive the vitality of the bees is worn out faster than when it is nearer their home. Then colonies located in the shade, in low damp places, or with the entrance facing away from the sun, do not ripen their stores as perfectly as do those with conditions more favorable. We used to talk about colonies as "near alike as two peas," with one doing good work and the other getting scarcely a living; but most of our practical apiarists realize that, where every thing is considered, two colonies which may appear perfectly alike can, by one or more "cog-wheels" being out of mesh, be very dissimilar; and this dissimilarity may make all the difference between the good and the poor.

But let us turn our attention to the part which the queen plays in this matter. Mr. Hooper says, "These 300 colonies may have queens all reared from the same mother and under the same conditions, yet some are very much inferior to others." Under natural swarming this is possible; but under the guidance of an intelligent queen-breeder it is not probable. With natural swarming the rule is that, with the sealing of the first queen-cell, out comes the first or prime swarm; and with this swarm go $\frac{3}{4}$ to $\frac{7}{8}$ of all the bees the colony numbered before swarming. The inmate of the first queen-cell sealed has had all the food and attention lavished on it that the first one did to bring forth a queen superior in every respect; and all that is required from now on till she emerges from her cell is sufficient heat for her development. But as a rule there will be half a dozen queen larvae in other cells, all the way from those just hatched from the egg to those near to sealing over, and these can not have the attention lavished on them that the first did; therefore they, as Mr. Hooper says, "may be inferior," and that just in proportion to the lack of the best environment.

Again, Mr. Hooper tells us, "We all know that virgin queens take from four to twelve days in mating." If by this he means that any queen ever mates in four days from maturity, I can not be classed with the "all;" for I never knew of such an occurrence. I do not say that such is *not* possible

under the genial sunshine of Jamaica, but even that is doubtful. I once rushed into print with the report that I had a queen emerge from the cell on the first day of July, lead out a swarm on the second day, and commence to lay on the fourth day of the same month, and so I reasoned that all of the old records were broken. But the next year, during swarming time, we had a week of cool rainy weather, so disagreeable that not a swarm issued. On the eighth day the sun came out, and the air was balmy. Then, to my surprise, I found plenty of young queens running around in hives which had had swarms issue from them with the old or mother queen, from four to eight hours before. In this way my "broken records" showed that I was not familiar with the fact, often proven since then, that virgin queens are often held in their cells by the worker bees from one to eight days after maturity, in which case they go out to mate in accord with the length of time from their maturity rather than from the time they emerged from the cell.

During those earlier years of my bee-keeping life I was continually puzzling over the problem of part of my colonies giving good yields of honey while others did scarcely any thing; and it was not till I commenced rearing queens as given in "Scientific Queen-rearing" that I found any answer to that puzzle. Then, with the selection of larvae of proper age, from my best queen mothers, I began to obtain more nearly like results from all the colonies in the apiary. I now had matters under my own control to a great extent; and by taking a frame of nicely cleaned and polished comb from a colony which was preparing the cells for the first eggs laid by a recently mated virgin queen, and putting this in with my best breeder for twelve hours, and then taking it out and giving it to a queenless colony, I learned just the size and looks of a larva twenty-four to thirty-six hours old, which were the ages when they could be turned into the best of queens to the best advantage by "broody" bees, with the richest chyle they had prepared for these larvae.

Having these things learned I then had nineteen out of twenty of my virgin queens mated and laying on the eighth or ninth day after maturity, with not one out of fifty failing to have plenty of eggs in the combs of her colony or nucleus on the tenth day, during the summer months, which would give about such weather as Mr. Hooper has during two-thirds of the year. When September and October come on, even the best of our queens take more time after their maturity for mating; and in October their

are only occasional days when the weather is suitable for drones and queens to fly, in which case the time of their mating is wholly dependent on the weather.

At the present time, after years of breeding from the best queens and along the lines given, if we put the standard for a good nectar season as 100 pounds, very few are the colonies which give less than 80 lbs., and equally few are those which give more than 120 lbs., all colonies being given the same attention by the one who "leaves no stone

unturned" that success may be attained. With a year such as Dr. Miller had in 1913, these figures might be easily doubled, while in a very poor year 30 pounds might be the standard, with 20 lbs. for the poorest and 40 pounds for the best.

In this striving, and in a measure attaining, has come a whole lot of pleasure, far ahead of gossip at a country store, which so many consider necessary as a "rest from their labors."

Borodino, N. Y.

THE LACK OF A STANDARD OF MARKINGS TO DETERMINE THE DIFFERENT STRAINS OF ITALIANS

BY H. G. QUIRIN

There is no doubt in our estimation that the Italian bee has been improved to quite an extent; but we feel equally confident that there is still plenty of room for improvement. The progress toward a better bee has been rather slow—the chief reason, in our estimation, being that nearly all queen-breeders have a particular standard toward which they are working. The qualities considered as most important by one breeder may not be considered as such by another. A bee best suited for a southern climate may not be the best for our northern States, and vice versa.

Mr. Hooper makes a statement in the latter part of his article with which but few breeders in the United States will agree; at least we don't quite agree with him where he says that those virgins which mate on the tenth, eleventh, and twelfth days generally turn out to be drone-layers, or start

laying drone eggs before they commence to lay worker eggs. We know nothing about the weather conditions in Jamaica. Probably the weather does not interfere with the natural inclination of the virgins to the same extent it does here; but in our own experience, where nice days are the rule, virgins will mate (the majority of them) in from six to nine days. A small per cent will mate both before and after that time. On the other hand, where weather conditions interfere, or where a virgin is otherwise prevented from taking her flight, she may be mated considerably after the twelfth day, and turn out to be as good and long-lived as any queen. However, circumstances alter cases. Where a virgin is kept in a cage till ten or twelve days old she may turn out to be a failure; while the same queen, if kept in a nucleus and prevented from taking flight for two weeks merely by inclement weather, has a much better chance for becoming a good queen.

An old beeman from whom we got our first pointers on bees many years ago (he was a doctor and a close student of nature) told us that he would a little rather have queens reared so late in the fall that the young queens would not begin laying till the next spring. When we asked him why he preferred such queens he claimed that they were hard-



Mr. and Mrs. John Stevenson among their bees in Everton, Mo.

ier. We can not say whether he made sufficient experiments along this line to know, or whether he simply held to this as a theory. In our experience we can not recall that we have ever noticed any difference.

From a theoretical point of view a hardy, long-lived queen ought to produce long-lived bees. The longevity of a worker bee depends upon the disposition of the colony, to a great extent. The workers of a nervously disposed colony are almost always shorter-lived. They may be out mornings somewhat earlier, and possibly out later evenings; yet every touch of their hive

brings them boiling out; every ray of sunlight seems to bring them forth in quest of stores. When it comes to wintering here in the North, such bees won't winter as well as the quieter bees, the main reason being that they won't cluster as closely. They have a sort of tendency to spread out over the combs more than the quiet bees. It is our candid opinion that the lack of longevity in some bees is due to their foolish habits rather than to the lack of some inherited quality from the queen, such as physical hardiness.

Bellevue, Ohio.

IMPROVEMENT BY SELECTION IN BREEDING IS GRADUAL

BY R. M. SPENCER

Many articles have been written on the subject of the best bees, the rearing of queens, etc., all of which lead up to the same point—the production of the most honey. We are all well aware that there are certain races of bees that cap their honey whiter—for example, the blacks; others that swarm considerably—the Carniolans; a cross of the blacks with some other race like the Italians makes a better bee for the production of fancy comb honey, while the Carniolan is a better bee for increase on account of its tendency to swarm. If the producers were all running for extracted honey there would be a far greater gain in the purity of the bees in the country, owing to the fact that black stock would be almost eliminated. A race of bees that will gather more honey is desired by the extracted-honey producer; and thus a territory where extracted-honey production is the rule is the best for rearing pure queens.

As Doolittle says in his department in the January 1st issue, there is no race that excels the dark Italians for honey-gathering qualities, and there is no question but that these bees are the ones for the extracted-honey producer. The question, then, is how to produce mothers from these queens which the apiarist buys from the queen-breeder who is breeding from the best Italian stock.

All honey-producers know that there is a great difference in the production of honey from different colonies in the same yard bred from the same mother, and this difference can not always be accounted for, even by the most experienced apiarist or queen-breeder. If it were possible to do so the poor queens could be superseded at once, and far more headway made, as in poultry-raising, for instance. This brings us down

to the proposition of breeding from queens that produce workers that make a certain average in a yard.

Years ago I had a certain colony that gathered seventeen ten-frame supers of nine frames each of extracted honey, which supers averaged about 30 pounds of honey each. The average yield in this yard was about 200 pounds per colony. Any breeder knows that, if I had reared 100 queens from the one queen whose bees made such a record, it would have been doubtful whether I could have secured one that would have equaled the original colony in honey-gathering.

The most practical plan for the apiarist is to use any one of the well-tried methods of rearing queens, and select several queens to rear from, whose bees show better honey-gathering qualities than the average in the yard, and also drones from colonies showing better honey-gathering qualities, thus making a small gain each year. Too little attention is paid to the drones when breeding is considered. I expect to see the day when drone brood or drones will be shipped by queen-breeders to apiarists for the purpose of providing superior drones for the mating of their queens.

HOW TO PREVENT THE LOSS OF YOUNG QUEENS IN MATING.

The mating of the queen after she is hatched has been one of the hardest problems, for so many of the young queens are lost. It is usually supposed that the missing queens are caught by birds, or that they enter the wrong hives and are killed. A year ago I made some careful experiments to see what proportion of queens became laying when requeening by giving cells due to hatch within 48 hours after the old queens were removed. In each of 100 hives

I gave the bees a cell as soon as the old queen was removed. Out of the entire lot, less than one-third became laying queens. After this experiment I again selected 100 colonies and gave the bees a cell *three days* after the old queen was removed, cutting out all the first cells started by the bees. Out of this lot about half became laying queens. Once more I selected 100 colonies, but gave the cells *eight days* after the queens had been removed, cutting out all cells started by the bees as before. Out of this lot fully 75 became laying queens. In each test the queens hatched in over 95 per cent of the cells given, showing that the loss came after the queens emerged.

After the bees once find out the loss of their queen, they start preparations to rear another. These preparations are hardly started within 48 hours when the young queen hatches if the cell was given at the same time the old queen was removed, thus

causing an abnormal condition, bringing about the destruction of the virgin by the workers. When the cells built by the bees at the time the old queen was removed are left until they are nearly ready to hatch and then destroyed, and the new cell given, every thing is normal and the virgin queen is accepted at once. Every apiarist knows that the loss of virgins when mating from parent colonies that have swarmed is not very large.

Being an extracted-honey producer as well as a queen-breeder I will say that, judging from the experience I have had in this section, the pure Italian stock is the best, and I have made a gain in the average colony by breeding from this stock. These bees are more resistant to disease, and gentler to handle. No mistake can be made by breeding from the best Italian stock obtainable, and "staying with it."

Nordhoff, Cal.

SOME INSTANCES OF STRIKING VARIATIONS IN QUEENS REARED UNDER LIKE CIRCUMSTANCES

BY J. B. CASE

An article on queen-rearing, to be of value, must not be the mere opinion of the writer, but must be based on the experience of one or more persons. Some important inventions, methods, and plans have come through a mere hint that, perhaps, the giver did not profit by. So, while I may have nothing new, yet it is possible that some one may get a hint that may set some train of thought in motion that may result in something valuable.

When GLEANINGS was a quarterly I had two or three stands of bees in New Jersey. As they increased I found that some colonies gave much better results than others, although, so far as I could see, all had an equal chance. I had a buckwheat location; but my management resulted in pure Italians giving more honey than blacks or hybrids.

In 1881 I paid an extra price for the colony that had made the most honey the previous year in a yard of some 60 Italian colonies. This colony was very strong, and the bees evidently knew that the queen was failing, as they built five cells and swarmed when apple-blossoms were open, the old queen being lost. As I was desirous of getting as many queens from the stock as possible I formed nuclei by breaking the colony up, and succeeded in getting five purely mated queens. The rest of the season was very poor, and these nuclei went into

quarters weak in bees but with plenty of stores from buckwheat. They were packed in thin nucleus hives inside my large hives on four combs of nearly solid sealed stores with chaff all around. All wintered well; and as soon as they became crowded they were placed in large hives with chaff on both sides of the brood-nest. Combs were added as they became crowded; and when the weather got warm the brood was spread, and combs of honey with cappings broken were inserted, and those queens laid "some." There were in Long Idea hives.

About the middle of June, No. 1 swarmed. The colony had 17 combs, with brood in 15 to the amount of 1100 square inches, actual measure. They were hived on eight of the best-filled combs of brood, and gave 80 lbs. of section honey from clover and 45 from buckwheat. The old colony gave 50 lbs. buckwheat honey in sections. The other four did not swarm. No. 2 gave 140 lbs. (had 1000 square inches of brood); No. 3 gave 125 lbs.; No. 4, 110 lbs.; No. 5 gave the average of the whole yard—about 97 lbs. Here were five queens reared under apparently the same conditions, and, so far as I could see, given the same chance, yet one gave a swarm and nearly doubled the honey that the other one gave. No. 1 gave excellent daughters.

I moved to Florida in 1885 on account of my health. In 1890 I had a nice little apiary

with Italians from the old No. 1 stock. I concluded to rear queens for the market, and bought some good Italian queens for my poorer colonies; got a Doolittle breeder, and in 1891 offered queens for sale.

In 1894 I bought a breeder from Elmer Hutchinson that was a dandy. I sold Harry Mitchel, Hawks Park, Fla., 17 queens. The next year was the "banner year" for this part of Florida for honey. Mr. Mitchel reported that all the queens were good, and helped greatly to give him his large yield—an average of 380 lbs., I believe—but one had, by actual weight, given over 600 lbs. These queens were reared as carefully as I knew how, and the bees were managed by one of the best beekeepers of that or probably any other day. Why the difference?

A few years ago I sent one of the most prominent beekeepers of Texas six queens—untested. The next year he wrote me that one of the queens he bought of me was one of the best he had ever owned, and was so valuable that she ought to be used for a breeder; that she was extraordinarily prolific, and that her colony had made a surprising amount of honey. I arranged to have her sent to me. She was medium in size, but was the best all-around breeder I ever owned, as she transmitted her good qualities in a large measure to her daughters. Were *all* her eggs capable of producing good queens?

The six queens mentioned above were all reared from the same mother, within a few days, and under the same conditions as nearly as I could give them. There was no complaint about the other five; but what accounts for this one being so far superior to the others? Queens reared from the above queen, just before she died of old age, seemed to be just as good as those reared when she was in her prime. While an extra-good queen can not be told from her looks, yet the most satisfactory breed-

ers I have had have been of good appearance, and medium to rather large. However, one "fancy" breeder that I paid a high price for was one of the poorest breeders or queens that I ever owned; but she was a beauty to look at.

A heavy honey-flow, when bees store honey around and on the cells, is not a good time to rear queens. Some of the poorest queens I have reared were reared during a heavy flow of honey. Some very large queens are worthless, while some very small ones are prolific; therefore size does not mark a queen's value.

From some cause some virgins—fine ones too—are very slow to mate when all conditions seem to be favorable. I think the slow ones account for most of the drone-layers. Perhaps poor drones are the cause frequently. Virgins delayed from mating on account of the weather are not so likely to be drone-layers as those that are slow from no apparent reason. Is the fault in the egg, feeding, or method?

I believe the following points are essential in order to rear good queens:

1. Use the best breeder available.
2. Use the best cell-builders in the yard.
3. Make the conditions, just as nearly as possible, to conform to the natural conditions when bees are contented and prospering, somewhere near the comb-building point, when bees are feeding their young lavishly, but not swamping them with honey.
4. Never use a larva that has been starved at some time in her existence, or that has not had an abundance of food of the right consistency, and destroy all larvæ not well fed, or that have had honey stored around the cell.

Briefly, I consider these to be important points in rearing the best queens. I don't know it all. Who does?

Port Orange, Fla.

THE VALUE OF CAREFULLY KEPT RECORDS IN BREEDING

BY C. F. BENDER

I think that the breeding of bees is one of the most important matters connected with our pursuit. "Pick the best colony and raise all your queens from that" sounds very simple, yet I don't remember a season when I ever did just that—partly because I could never be sure which was the best colony, and partly because I feared the effect of in-breeding if I stuck too closely to one family. While it is not easy to choose the best colony, all things considered, it is

not difficult, out of a hundred or two hundred colonies, to select a dozen or more that are far above the average. It is quite a help to have a large number to select from. When the bees are hauled to the outyards in the spring, all the best are left for the home apiary, as I expect to rear all my queens there; and those colonies that are not used for queens will furnish drones of the best quality.

In selecting a queen mother the amount

of honey stored is the first item. The dozen or so showing the highest yields are graded according to that; then those having serious faults are marked out. By queen-rearing time the choice has usually narrowed down to three or four; and if all seem equally good I prefer to breed from all of them. In general, all faults except bad temper and propolizing will help to reduce the yield of the colony, and so need not be specially noticed. For instance, swarming or bad wintering will usually put the colony below the average in storing, and so rule it out.

A system of records is a necessity if one is trying to build up a good strain of bees. A record must be kept of the age of each queen, the amount of honey produced, and the number of the colony from which the queen came. For example, my best queen the past season was marked on the record 32q11, meaning that the queen was reared in 1911, from brood obtained from colony No. 32. By looking over my records I find that a dozen or more sisters of this queen are still living, and that nearly all have produced exceptionally good colonies. Turning to the 1911 record we find that the mother of these queens came in like manner from 29q08; and we can trace any queen back and discover all her relationships as far back as 1899, when my system of record-keeping was begun.

If one is rearing queens to be used in comb-honey production it is necessary to keep track of the finish and filling of sections as well as of the number. Some colonies will store a lot of honey, but will put so much propolis on the cappings that the honey must be sold for No. 2. Some will make a start in every section, even in a light flow, and leave the majority of them unfinished or very light in weight. Others will start only a few sections at a time, and fill them full as they go. I had a weak colony the past season that gave 18 plump sections weighing a full pound each, 3 partly filled, and 7 with the foundation untouched. I regret that such colonies are usually below the average in the amount of honey stored.

Sometimes it is a strong temptation to use a queen whose bees are very gentle and beautiful, and only moderate as to storing. In such cases I often raise just a few queens from her, in the hope of getting one of her daughters whose bees have more energy. To some extent each one must value the different qualities for himself. I never saw a hive of bees that had *all* the good qualities in perfection, with none of the bad. Personally I dislike cross bees of all things, so a touch of bad temper cancels all merits for me. There is less wear on my nerves in

working two colonies of gentle bees than one of cross ones, and it takes me quite a little longer to go through a cross colony.

With some fear of raising a storm of protest, I will venture to give my opinion of golden or yellow Italians. I have handled a great many so-called goldens. At one time I had an entire apiary of them, with queens from all the leading breeders of yellow stock. It is a matter of regret to me that I can not afford to keep them. Their beauty and quietness on the combs are very pleasant to see. They defend their hives better against moth and robbers than any other bees I have ever handled, and I think they do nicer work in finishing sections than the common Italians. But as to quantity of honey stored they range from zero to moderate. I have had a few colonies that would hardly gather a living in a good season. Occasionally one finds so-called goldens that are good workers, but with a villainous temper, which I suppose comes from Cyprian blood. I have always found goldens, even the gentlest, very difficult to introduce queens to, the loss by actual count being three times as great as when introducing to common stock.

A queen can not usually be considered tested for honey production before she is two years old. I never like to give a queen credit for good work until all the bees in the hive are of her blood. This does not usually occur before the end of the first season. The second season is the real test of her worker progeny, and we begin to use her as a breeder about the beginning of her third laying season, or the end of her second year. I remember only one case where I was able to use a breeding queen at one year old, on the strength of an unusual record made on the fall flow. I have some prejudice in favor of breeding from younger queens if we had any way of deciding which ones to use.

I like to buy a few queens each year for the sake of introducing new blood, but never use them or their descendants as breeders unless they prove superior to my original stock, which has not happened lately. I have bought no imported Italians for many years, as I have always found them inferior for comb honey. Of other races than Italians, I shall say nothing in this article except that I no longer keep them.

I have said nothing of selection for hardiness or resistance to disease, because these things largely take care of themselves. If you want hardy bees, expose them to hard conditions, and only the hardy will survive, of course. But I have never done



FIG. 1.—B. M. Caraway's apiary of 175 colonies all ready for the honey-flow. The uniformity shows the result of breeding.

that, and don't think I ever shall, except where the hard conditions come naturally and can not be avoided.

Some think that swarming, stinging, propolizing, etc., are merely signs of energy, and that we must put up with such bad qualities if we are to get good workers. If I were going to buy a mule I would hardly

pick a vicious kicker in the hope of getting a good work animal. Kicking and stinging are both manifestations of energy, to be sure; but in both cases it is energy misapplied, and our aim in breeding bees is to get the living force of them applied for our benefit.

Newman, Ill.

WHAT I REQUIRE IN A BREEDING QUEEN

BY B. M. CARAWAY

At the outset I wish to say that I have put more thought on breeding for improvement than on any other phase of beekeeping. Every thing centers around breeding, and around breeding centers the queen and her subjects. For one I believe we can improve bees and build them up to a higher degree of efficiency. To prove this I have been selecting my breeders for several years past with this in mind. I select the colonies that store the most surplus honey; and as I have over 400 colonies to select from I have an excellent chance to get the best. All that make a high record I mark, and from these record-makers I select the queens that come nearest my ideal.

I want a breeding queen to be yellow, of good size, and slightly slender rather than with too thick an abdomen. The queen that is a trifle slender is, as a rule, the most prolific; and a queen to be a breeder must be prolific. Her bees must be evenly mark-

ed, must show three yellow bands, must be uniform in size and color (I prefer them of medium size), and they must be gentle. I would not use a queen for a breeder if her bees were bad about stinging. I prefer to have the bees cap their honey with an airspace under the cappings, as this gives the honey a much finer appearance.

The final test comes after the bees from such a queen have graded well in all the above points; and that test is that the queen must be able to duplicate herself in queens—that is, the larger per cent of her daughters must be prolific, must have a slender abdomen, and be yellow. It does not matter whether they are yellow to the tip, but they must be mostly yellow. I select the mothers of the drones with the same care that I select the mothers of the queens. This is very important.

Did you ever notice how much bees in the same hive vary in size? A queen that pro-

duces bees of all sizes does not suit me for a breeding queen, for it could hardly be expected that her queens would be all of the same size. It costs a queen-breeder no more to use a breeding queen that produces queens of regular size and color. However, no one must expect to get all good queens of regular size and color, even from the best breeder in the world, unless the cells are built in a colony that is full of young bees; and they must have a natural honey-flow or else one as near natural as possible, brought about by stimulative feeding.

One colony should not have more than 18 cells to build at one time. The bees will build more than 18, but some of the young queens will probably be undersized or off color. Furthermore, unless the cell-building colony is strong and composed of many young bees, even with 18 cells there may be some undersized virgins. This condition will be found more often in case of a cell-building colony that has too many cells to build at a time. The bees can not care for all of the cells properly, and the outside ones suffer for warmth and food while the cells near the center have every advantage. Nearly always the small virgins come from these outside cells.

Fig. 1, accompanying illustration, shows one of my apiaries—175 colonies in all—and they were ready for the honey-flow. Every hive was full of bees from top to bottom, and from one side to the other, excepting a few containing nuclei that I had formed a short time before for increase. This proves that it is worth while to select a queen for better bees.

I much prefer that all virgins should be mated and laying by the time they are ten days old, and not over twelve at the most. Virgins that are not mated before they are twelve days old make poor queens, as a rule, and are likely to be drone-layers, or

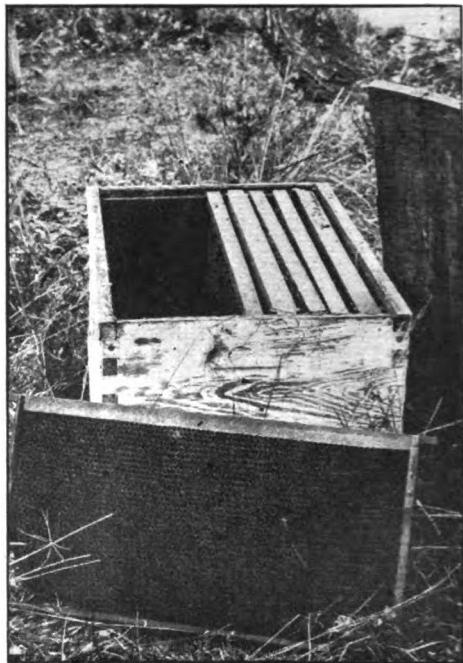


FIG. 3.—The inside of the hive shown in Fig. 2. A mere nucleus at the opening of the honey-flow is not in condition to do more than build up to full strength by fall.

else will be superseded in a short time. This is not always true, but I believe it is the rule.

In any apiary where the colonies are headed by queens that are reared from any queen that gives pretty bees regardless of other important qualities, the result will be about as follows: One-third of the colonies will get a good crop of honey, one-third will get about half a crop, and the other third will just barely live, and may have to be helped by the good colonies. I do not think such bees pay. In such a case I would recommend the purchase of a good breeding queen from some queen-breeder that has good bees, and head all colonies with good vigorous queens reared from this one breeding queen. There will then be another story to tell the next season. Of course, the virgins must be mated to good drones. There may be a few queens in the last class mentioned above that will prove to be very good queens the season following; but I do not advise placing much dependence on them. I would recommend superseding all such queens.

Figs. 2 and 3 show how some people keep bees. Can any one expect such a little colony to get any surplus during the next honey-flow? The bees will do well to build up to a full colony and get into condition to



FIG. 2.—A neglected colony in a neglected hive is not a good business proposition.

go into winter quarters the following fall. No matter how good the queen is, she could not possibly build up so small a nucleus to be ready for a honey-flow in the spring.

These pictures also explain the great difference in the amount that some colonies store. All must be strong if one expects to get any surplus honey during the honey-flow. The colony that has plenty of good winter stores and some left over when the next honey-flow arrives is the one that will make the most surplus. Such a colony is in ideal condition to winter perfectly and be ready with the "tub right side up" when the next honey "rain" comes. This is the kind of colony that counts, and better breeding helped to make it what it is.

After breeding by selecting I find that

the poorest of my colonies are ahead of the best of those belonging to beekeepers who have not paid any attention to the question of breeding. Yes, every once in a while some one says that we can not improve on the average strain of bees—that the bees will revert back to the starting-point, etc. I do not find that this is the case after ten years of careful selection from the best. When I first started I had little black bees. Later on I ordered several breeding queens from the most noted queen-breeders in America. I also got some imported queens, for I wanted the best that money could buy. Please understand that I am not trying to breed a better race, only a better strain of the old three-banded Italians.

Mathis, Texas.

SUCCESSFUL BREEDING OF QUEENS DEPENDS ON A GOOD MANY THINGS

BY W. D. ACHORD

A queen reared from the egg or from the young larva, in a full-sized cell, and supplied with more royal jelly than she will consume, I call a normal queen. Such queen, I contend, will give good results in honey, and she will live, perhaps, two or more years. She will also be large and strong. An egg or larva of the same age in a *small* cell supplied with more royal jelly than can be consumed will result in a small queen. Nevertheless her colony will give good results in honey, and she will live, perhaps, two or more years. An *old* larva in a full-sized cell, supplied as above, will result in a full-sized queen, but her colony will be no good for honey, and she will live but a short time. An *old* larva in a *small* cell, and *not well fed*, will result in a queen not so large nor as good as the last one mentioned, and she will soon be dead. What is worse, oftentimes the bees will fail to supersede her successfully. The last two queens mentioned will not commence to lay as early as the first one. These conditions often prevail when colonies are left to rear their own queens.

In the foregoing I have ignored the stock or strain of bees. Do I believe there is a difference in the stock or strain? Yes, I believe that "blood will tell" in bees as surely as in people, horses, or hogs—if we can control the mating. There are a great many things for a queen-breeder to remember when trying to produce nothing but good queens—the stock to select, the way the work is done, the locality, etc. Here I confess that I do not confine my practice to noticing all the minor details when se-

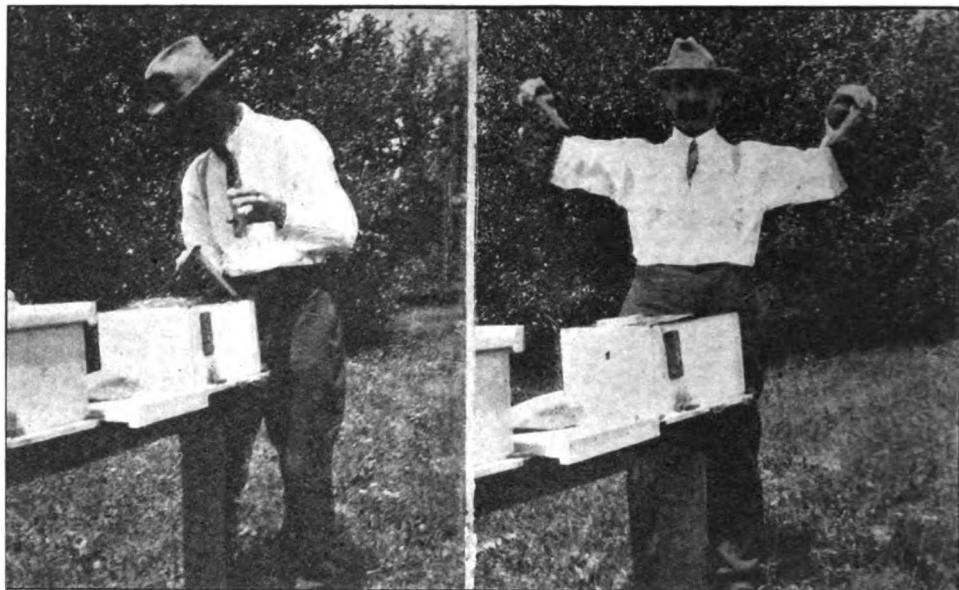
lecting my queens to breed from. I have five outyards, 600 colonies in all, which I run for honey. On the hives I mark the age of the queen, the amount of honey taken, whether the colony tried to swarm, etc. This I have done for the last three years, and from these colonies I select the queens to use in my queen-yard at home for drone mothers as well as for queen mothers.

In color I prefer the dark three-banded bees, and they must not be wanting to sting all the time, though I do not expect to rear a stingless strain. I find that, if bees do not have energy enough to resent an insult, they do not have energy to gather a big crop of honey.

Cell-starters, finishers, and nursers must be two-story colonies, the hives being filled with bees from top to bottom and side to side. Not all colonies in the same yard are the best cell-builders. On this account poor queens may be reared if one does not select the cell-builders. The larvae must be young, and supplied with more royal jelly than they can consume.

Nectar must be coming in every day for best results. I much prefer natural nectar to artificial feeding. Some localities are good for honey but not for queen-rearing. Others are good for queen-rearing and honey, while still others are good for queen-rearing but not for honey. It is also true that some are good for neither (this is something that I have experienced as well as read about). A commercial queen-breeder should have a good locality for his business or else quit the business.

Fitzpatrick, Ala.



J. P. Moore, Morgan, Ky., the well-known queen-breeder and honey-producer.

J. P. MOORE AS HIS ASSISTANT SEES HIM

BY J. E. JORDAN

To the readers of GLEANINGS who have not had the pleasure of knowing Mr. J. P. Moore, the queen-breeder, I will try to give a correct idea of him. If anybody should come in at the Moore farm between the hours of sunrise and sunset, and want to talk to J. P. (as he is known) he would have to keep moving all the time. He is on the go constantly, and can keep at it longer than any other man I ever knew. He is 53 years young, and looks about 38—hair slightly twinged with gray, and inclined to curl.

I really believe the reason for his activity and youthful appearance is on account of his good care of his stomach. Fruits of all kinds, either cooked or uncooked, come first

in the morning and last at night. Wheat, cooked and uncooked, is also a favorite with him.

Mr. Moore does not have much to say to any one; but when a visitor begins to talk bees he has hit a subject that he can talk on from morning till night. It is a hard matter to ruffle his temper. He is the best-natured beekeeper you ever saw. Why? Because he has the best-natured bees that you ever saw.

The secret of his success is due to his ability to *keep at it* so long at a time. Cleanliness is another of his great traits; and every queen that goes out or every can of honey that is sold, may be depended on in that line.

THE DANGER IN BREEDING EXCLUSIVELY FROM ONE STOCK

BY W. A. H. GILSTRAP

One of the first questions to puzzle the breeder of bees is a choice between breeding one strain of bees or bringing breeders from distant breeders. Like the Irishman, I say, "Of all the extrames, give me the middle one."

To "line breed" fixes certain characteristics as no promiscuous breeding will. By

taking a few first-class colonies and keeping their increase from crossing with other bees one will in time produce a strain of bees with a type different from any he is likely to find. It is surprising how many distinct strains are built up this way.

It might do to let the matter of selection stop at that if vitality could remain unim-

paired without introducing new blood; but it is bound to cause trouble sooner or later. The first defect of continuous breeding of one stock, so far as I can learn, is a proneness to paralysis. Why? The nerves are deranged, just as in some of the royal families of Europe. Paralysis is a nervous disease. Some say in-breeding can not produce bad results in bees; but I am convinced it has seriously deteriorated one good strain of Italian bees.

My experience with bees has been confined to stock from one or more breeders in each of eleven or more States and Italy. The only varieties tried are Carniolan, Cyprian, Syrian, blacks, and Italians. The Italian from Italy and the yellow descendants of the same, bred by many in the United States, are so little alike as to be in entirely different classes for practical results. Both

dark and yellow Italians have good and bad strains; but the best strains of either class are not necessarily best adapted to every locality.

It is possible that some localities may be found where some other bee is better than the Italian; but such locations are scarce, in my opinion. Ordinarily my belief and practice are to ascertain by actual experience which is most satisfactory—the light or dark Italians; then test individuals of promising stock before raising drones from them. Enough outside stock should be infused in the strain to keep up vigor; but radical changes should be avoided. While a breeder may be trying ever so hard to improve his bees he should remember that others are trying just as hard to improve the same general type of bee.

Modesto, Cal.

IS THERE A TENDENCY ON THE PART OF BEES TO REVERT TO THE ANCESTRAL TYPE?

BY L. W. CROVATT

There was a case experienced in queen-breeding in my home yard last summer when eggs hatched in the hive domain of a golden queen, and grafted four days afterward by my own hands, developed several queens of a color as dark as the average German strain, and I have been casting about without satisfactory results for the logical reason.

Some may say that I got queens of black color from the German brood. This is not the case, though, for the cells were grafted. The colony from which the larvæ were taken was undoubtedly Italian of a very perceptible marking; and to clinch the proposition I will state that the cell cups were all on a stick—of the artificial or wooden type—and there wasn't an egg from the former German queen tolerated until I could breed Italians in the hive. In fact, I had removed every comb excepting a few which had well-sealed brood in them.

Now, what I want to know is this: Could the golden queen from which I was grafting have in any manner, through a previous generation, been by blood related to some German race? If so, would there have been such a sudden and violent reversion of type, and the young "mother bees" have so changed in color from the time of grafting to hatching as almost to be mistaken for a German?

Candidly, the thing has stuck in my mind, and I have often studied over the proposition; but it is seemingly no clearer to-day

than it was when, in the mild mid-afternoon sun of the balmy summer day in Dixie, I removed my queen-nursery cage from the cell-building colony. The cells had been placed in the Titoff nursery cages on the eighth day to avoid loss, as I was busy with other matters and hardly expected to reach the ripe cells in time to prevent a youngster emerging and "wrecking" the remaining cells.

Surely it looks like atavism beyond peradventure; but who is qualified to say if this is correct?

Savannah, Ga., Feb. 11.

[The above was referred to Dr. Miller. His reply follows.—ED.]

So far as I know, there is no reason why atavism should not occur among bees as well as among other living creatures. It might also be expected to occur more readily in your golden stock than among three-banders, since golden stock is something comparatively recent, and not so nearly a fixed type as the three-banders. Moreover, it is more likely that in previous generations some black blood had worked into the golden than into the three-band stock.

You do not say positively; but from your saying "several queens" I take it that all the queens in that particular lot were dark. I hardly think atavism is likely to occur in such a wholesale way—more likely there would be a single one of the lot showing variation.



Uri Hammond, Vivian, Louisiana. Master Hammond has "kept bees" in two States.

You speak of "a sudden and violent reversion of type . . . changed in color from the time of grafting to hatching." I do not understand that a change occurs during that time from atavism, but rather that atavism dates back to the earliest time of the germ. And yet it is quite possible that the change might have occurred in color during those few days; for cool weather, scant food, or some other circumstance may sometimes make the royal progeny of a pure Italian queen quite dark in color, when her previous and subsequent progeny appears as yellow as herself. But that's not atavism.

After all this has been said, it remains an open question whether there was any

black blood at all in the case. There may or there may not have been. You do not say, for you say nothing about the worker-progeny of these dark queens. And that's the deciding factor. If the worker-progeny be mixed as to the matter of yellow bands, the queen can not claim to be pure, no matter how yellow. If the workers are uniformly three-banded, then the queen need not hesitate to claim purity, be she black as night. Some queens direct from Italy are as dark as queens of black blood, but their workers are all right as to color.

You may have had a case of atavism; but it is not at all proven, and is quite doubtful.

C. C. MILLER.

Marengo, Ill.

FOUR HUNDRED QUEENS FROM ONE COLONY

BY ARTHUR C. MILLER

In a recent issue of GLEANINGS I spoke of one colony of bees producing about four hundred fine queen-cells in one season, and being a rousing colony at the finish. The editor tells me that many of his readers want the particulars, and no wonder they do; for either I told a "whopper" or else have something worth dollars to the fraternity.

It is worth dollars to all who will master it; but I tell you at the start it is not for the careless man nor for the man who fails

to do the right thing at the right time in the right way. On the other hand, it calls for less work, less care, and less attention by many times, than it does to produce the same number of cells by any other system. Not only is its cost in labor much less per cell, but its cost in colonies is very markedly smaller.

According to commonly accepted belief, a colony will not (or can not) construct more than about one dozen good cells at a time, and should never be used to construct

another batch until it has been returned to its brood and allowed to remain thereon until well re-enforced by more young bees. This is speaking of the general custom—individual systems, mayhap, modifying it slightly. In other words, it takes the work of about thirty colonies to produce four hundred cells by commonly accepted methods; or using one colony six times during a season means that five colonies must be withdrawn from honey-producing, and be devoted to the task of raising four hundred queens. The cost in dollars and cents you may figure for yourself.

The improved system is any thing but new in most of its details; but it does have a few features peculiar to itself, and on these features its success to a considerable extent hinges. It is known hereabout as the "Fuller system," having been worked out and brought to success by Mr. O. F. Fuller, of Blackstone, Mass.

It is based on the old idea of having cells built in a colony with a laying queen, cells and queen being kept apart by queen-excluding metal. Mr. Fuller's early efforts followed much the lines laid down by Mr. Sladen; but he soon began to change and modify in his efforts to secure more uniform results, and it is to some of these changes that his success is due.

His mechanical appliances are few. He uses a double-walled chaff-packed hive wide enough to hold twelve frames, using this size for convenience in manipulation. The hive has a tight partition of queen-excluding metal so placed as to make one compartment ample for easy handling of four frames, and in this chamber the queen is kept. Furthermore, the entrance to this part is protected by the same sort of excluder metal. The entrance to the cell-containing part is *not* so protected, and in this feature his system is the opposite of all the others, and to it I ascribe much of his success. Reverse it and his success is no better than by any of the older plans of a similar nature.

His other appliances are the common wooden cell-cup holders, metal bars punched with holes to carry the wooden cells, and frames in which these are swung, so ready inspection and handling are secured. So much for the equipment.

The procedure is as follows: The colony is made *strong* if not already so. It is strong in the fall, has a young queen, and is wintered with the dividing partition out, so usually it is booming in the spring. If it is not, it is made so by the addition of brood or young bees or both. When about ready to begin cell-raising, the partition is

put in, and the queen is shut into her compartment and given four combs, choosing those which will give her some chance to lay, but not much. On the other side are several combs of brood, honey, and pollen. At the start of the season Mr. Fuller sometimes helps matters along by filling this compartment with combs of emerging brood by adding two or three from other colonies. At the end of a week all eggs in the "cell chamber" have hatched, all larvæ are too old to be troublesome, and some queen-cells may have been started. The combs are carefully examined, and all such cells are destroyed. One comb is now removed, and a frame holding the cell cups put in its place. In it are two dozen or more of the wax cups.

Now begins the important part; and unless these details, which I will italicize, are carefully observed, failure will pretty surely follow.

Put the cups at least *one comb-space from the partition, and never fail to have a comb between cells and the partition*. In a few hours, more or less, a dozen to twenty of the cups are grafted and returned to their places, and *every other day* more cups are grafted. As they reach maturity they are slipped into cages, hung in the same chamber, and the cells are allowed to hatch there if no nuclei are ready. The presence of caged virgins has no effect on the cell-building. As the season advances and the number of cells increases more room is given in the cell-chamber, if needed, by removal of a comb or two. If additional frames of cell cups are used, be sure to have a comb of brood between it and the other cell-cup frame.

As combs in the cell-chamber become empty of brood, they are exchanged for combs of sealed brood, either from the queen's compartment or from some other colony. *Combs containing eggs or young larvae must never be put in the chamber with the cells.* To make this easy, Mr. Fuller is accustomed to keep a few frames of brood in an upper chamber of some colony, and over an excluder, getting them from the queen's chamber or from some other colony.

The manipulation of the queen's chamber is important. *She must never have much room for laying.* Mr. Fuller often had trouble in the colonies until this was learned. In other words, *the colony is always full of young nurse bees and short of babies to feed.* Supersedure conditions!

To do this to the best advantage, it is necessary to draw some of the sealed brood from other colonies, so that, strictly speak-

ing, one colony does not alone and unaided do all the work. But a comb of brood now and then, taken from a nucleus, matured over an excluder and put into the cell-building colony, is really turning waste material to profit, and it does not take many such during the season.

Sometimes a colony refuses to "play the game," and has to be discarded for another. Why they behave so we do not know.

If honey is coming freely the cell-building colony will put up a surplus, and a heavy flow is really a nuisance, as it clogs the combs of the queen's part as well as the other. If the flow is very light or intermittent, feeding is necessary. Mr. Fuller

keeps a candy-feeder on top of the queen's compartment, all the time, as a safeguard.

In such hives he has raised fine cells in April and as late as mid October. He has had as high as eighty cells in such a colony at one time.

The cell compartment is the very finest place to keep drones. He had several hundred in one hive on the 21st of last December. I'm of the opinion that the presence of drones, and their liberty to fly, is a great help in his system, and I know that I like to have a dozen or more in each of my baby nuclei. Drones are more of a help to us than we have supposed.

Providence, R. I.

THE CHIEF POINTS TO CONSIDER IN THE SELECTION OF A BREEDER

BY J. F. ARCHDEKIN

I have made no new discoveries in the art of queen-rearing, having confined my efforts to orthodox methods. Of course, I have had my share of novel occurrences which call for special treatment; but I will pass to more important things.

The first thing to consider is the breeder. Briefly, a first-class breeder is a heavy layer. Her colony winters well, the bees are gentle to handle, and are hustlers. These are the principal points to keep in mind. If these can be combined with some others, so much the better. The offspring of some queens cap whiter than others; these are to be favored. Some colonies propolize more than others. This trait is not to be favored.

As to her personal appearance, the queen should be fairly large, and should have a thrifty look. While she should be active she should not display this agility by running over on the other side of the comb while you are looking at her. Unless unduly disturbed she should continue laying while you watch her. She should be well marked, and the abdomen an even color throughout its length. If one has a queen which conforms to the above qualifications he may be sure he has something very desirable. I have reference to the Italian bees, although the above is probably true of most of the other races.

METHOD USED IN REARING.

After trying various methods for building cells I have adopted the upper-story system. As it is necessary to have a strong colony to get large well-fed cells and vigorous queens, the above answers the requirements perfectly. A double-story colony is bound to be strong. I use a queenless colony for accepting the freshly grafted cells. The grafting is done in early morning or late afternoon.

The morning grafts are transferred to the cell-building colony in late afternoon, and the afternoon grafts changed the first thing in the morning. By this means I have been enabled to get a larger number of cells accepted than by any other method except in colonies which are preparing to swarm. These latter are not available all the season.

Should a cool spell of weather come early in the season the cells in the upper story will be safe, whereas they might be lost in the ordinary one-story hive. It is important (at least comfortable to the operator) to use gentle colonies for cell-builders. I think this has some influence on the temper of the offspring of the embryo queens.

QUEEN INJURED LESS IN THE MAILS IF NOT LAYING HEAVILY WHEN SOLD.

For mating I use twin mating-boxes. The frames measure $5\frac{1}{2} \times 7$ inches, and each side takes three of them. This allows one to keep a fairly large number of bees in each nucleus; and if there is a good flow these little colonies will often become honey-bound. On the other hand, if many of the bees are lost through following the queen on her mating-trip the loss is not serious and is more readily replaced than with full-sized nuclei. I have found these latter very bothersome about swarming out. Of course, the plan has its drawbacks, but so have the others. To me it is a method of turning out a first-class product at a minimum cost.

Queens mated in small nuclei will always ship well because they have never had an opportunity to become fully distended by heavy laying. Queens that are laying heavily are in grave danger of being injured in shipping if they are not slowed down by

some means before being sent out. Then it is so much easier to find the queen in these little colonies that the time saved in caging amounts to considerable. It is very annoy-

ing to have to search any length of time for the queen when one is in a hurry. Taking it all around, I like the plan very much.

St. Joseph, Mo.

QUEEN-REARING ON THE ISLAND OF CYPRUS

BY M. G. DERVISHIAN

Until within a very few years I obtained my queens from natural swarms only, and I used to have a large percentage of swarms every year in April and May. The majority of these queens were small in size, and weak. The last two or three years, with the help of GLEANINGS, I have adopted up-to-date swarm-controlling methods, and during two seasons I have had only two or three natural swarms from between fifty and sixty colonies. This improvement has been profitable, both for the production of honey and for vigorous prolific young queens.

Years ago the colonies which swarmed did not yield any honey, and those which yielded honey could not produce any queens—that is, they could not do both together. Under the present scientific methods I make one or two of my weak colonies queenless, and commence feeding. The bees start queen-cells which I destroy before they are sealed. I give cell cups grafted from my best colonies having fine long queens. The next day, or about thirty or forty hours afterward, I remove these cell cups into my breeding colony which I especially prepare for that purpose as follows: Early in May I create a very strong queen-rearing colony, and I change the unsealed larvae from this with sealed brood from other colonies, so that in the lower story there remain two combs of honey and pollen, one on each side, two frames having full sheets of comb foundation, and six combs of hatching brood. I confine the queen of this queen-rearing colony to the lower story of ten combs with a queen-excluder. On top of this excluder I put another full-sized story which I fill with eight combs of hatching brood from other colonies. I commence feeding with thin syrup or (preferably) honey mixed with water. Two or three days afterward, when most of the brood has hatched, I insert in this upper story cell cups grafted from my best colonies having long year-old queens. (These cells were first accepted by other queenless colonies, and then transferred to this queen-rearing colony). I continue feeding regularly every evening.

The number of the cells given does not

exceed twelve, as I have reason to believe that, the fewer the cells, the better the results obtained. By accident last September I discovered that a moderate-sized colony out of which I had taken a queen started a single queen-cell, and for an experiment I did not replace this cell with one raised under the fore-mentioned method. When the cell was sealed I found it was the largest I had ever seen, and the resulting young queen was correspondingly larger. I intend to keep her for the purpose of breeding. When this colony started the queen-cell in question the bees were fed every evening.

Some of the queen-rearing colonies I divide into nuclei of three combs each, and give each lot of bees a queen-cell. I keep these nuclei about two feet away from each other, all in one place, and confine the bees in each nucleus for two or three days in order that they may not return to their old stands. On the third day after sunset, just before dark, I remove the wire screens from the entrances and put in front of each nucleus a board a foot square, slanting against the front in such a way that the bees when they come out may bump their heads against the board. Each board is painted a different color—red, white, green, blue, black, etc., the object being to make the queen and her escorts mark well their new home. I keep these boards in place for eight days. Before adopting this plan my percentage of loss of queens was great, but now hardly a queen enters the wrong hive.

I leave the queen of this breeding colony with three or four combs of her hive, and then refill the lower story and the top story with hatching brood from other colonies so that, in a few days, this breeding-hive again becomes crowded with young bees. After this I again give cell cups started by other queenless colonies as described above. As soon as the cells become ripe in the queen-rearing colony I remove them into the nucleus hive described, from which the queens are taken later on to be mailed. It is understood that the nuclei as well as the large colonies are all fed regularly with a small quantity of thin syrup every evening. I never sell queens from the nuclei until they have been laying for about twenty days, so

that they will have laid a large number of eggs and I have had the opportunity of observing the sealed brood.

HOW I PICK UP QUEENS.

Formerly I used to pick up queens with my fingers as I was taught by Mr. Frank Benton when he visited this island many times in the 80's. For about nine years, however, I have been using a pair of watchmaker's tweezers, about three inches long,



M. G. Dervishian's method of catching queens, for caging or clipping their wings, by means of a jeweler's tweezers.

for taking up the queens by the wing, and for putting in cages or clipping. I have found the use of these tweezers more practical than the old method of catching queens with the fingers. Besides being more convenient, there is then no contamination by

reason of any taint or odor to the queen; and consequently a queen that is clipped, for instance, runs less risk of being balled by the bees. The catching and clipping of the wings of a queen can be accomplished in three or four seconds. The queen, being seized by one of the wings, is held about an inch above the comb; then with the other hand the wing is clipped by the use of a pair of small scissors, and the queen falls back where she belongs. I have taught my sons to handle queens with their fingers, but they prefer the tweezers, as it takes less time and is easier. The bees do not get frightened as they sometimes do when one picks them up with the fingers.

DRONE-REARING.

The selection of the best drones in a scientific queen-rearing apiary is of great importance. I have adopted a plan similar to that explained in "Scientific Queen-rearing," by G. M. Doolittle. I have a drone-cell comb-foundation machine with which I manufacture enough comb foundation to supply all my colonies with a full sheet. This I insert in the middle of the brood-nest; and these drone combs, when built, are filled with drone eggs from which I get fine large drones from April to September inclusive. I take great pains to destroy all drone brood reared in worker cells or any from unfertilized queens that may have been laying. I also take the necessary steps to prevent laying workers.

Drones of small size, if any exist by accident, are at once trapped and destroyed. Such drones result on account of the absence of sufficient drone comb in the hive.

Nicosia, Island of Cyprus.

DOES A QUEEN MEET A DRONE FAR FROM THE APIARY?

BY G. W. HAINES

My son and I, with a little help, are running six apiaries. It has always been my practice to keep a fine strain of bees that are good honey-producers, and to work for the extra ton of honey, letting the other fellow raise and sell the queens. We often hear of a beekeeper who is looking for an out-of-the-way place to raise queens—some island or some forsaken spot where neither man nor bees are found.

To my way of thinking, a queen on her flight never gets out of the lot where the bees are kept. At my home apiary I have kept from 200 to 220 colonies for a number of years. Here I raise a few queens for my own use at home and for the out-apiarries. I have tried all ways, and have spent a lot of time and money in small mating hives

and boxes, but I am now using a regular eight-frame Langstroth hive with a division-board in the center, and three Langstroth frames on each side. The bees on one side use the entrance in front, and those on the other the entrance in the back. At any time honey or brood can be given either nucleus from any other hive, and in the fall the two nuclei can be united. Of late I have had about fifty nuclei for queen-rearing; but my son, who has had an unusual attack of the bee fever, thinks we ought to have 75 next season and keep more bees.

My home apiary, with our 200 colonies, is at the bottom of a large hill that slopes to the north. By standing at the south side of the yard, and looking north against the hill when the sun is just right at my back,

it is a surprise to see the great cloud of bees as well as of drones in the air. On several occasions, when queens were about to mate, I have watched them in this way. Last summer I called my son to watch a queen, and soon three came in sight at one time with their flocks of drones. It reminded me of a flock of fifteen or twenty black-birds flying around the lot. The queen in each case was ahead, and the drones all flying very close after her at a far greater speed than that attained by the workers. They would fly back and forth around the yard; and whenever they circled high enough to get above the hill we could not see them against the bright sky.

I wish that some of the queen-breeders would give this matter a little time if they have a yard located just south of some big hill or woods. A building or a few trees do not afford enough of a background, as the bees are soon out of sight.

If a queen-breeder takes the necessary care in the selection of his drones as well as his queens I will venture that a queen

will seldom get out of an ordinary field where bees are kept, if there is a crowd of drones flying every fine day.

Mayfield, N. Y.

[If there is a cloud of drones flying near the apiary we would grant that a queen would seldom go very far away from the apiary to mate; but suppose there are a good many other colonies within a mile, say, of the apiary in question. Can you be sure that the cloud of drones in the yard is made up entirely of your vigorous stock selected? As we have reported before, we have observed drones collecting in "schools," and if there is very much of an uproar when these noisy fellows get together it is quite possible that other drones from hives located within a mile or half a mile may be attracted thereby. In a breeding-yard composed, say, of Italian stock exclusively, but located in a territory where there are numerous black colonies in small apiaries near by, the proportion of purely mated Italian queens is much lower than in the case of a yard that is more isolated.—Ed.]

ARE THE BEES OF AN EXTREMELY PROLIFIC QUEEN AS HARDY AS THEY SHOULD BE?

BY DAVID ROBERTS

Can a queen be too prolific? It is evident that a colony must be strong if it is to do well, especially in the super. But what is strength? Is it always mere numbers? In my experience I often find my most populous colonies surpassed as to surplus by smaller colonies. As a matter of fact, "there is no gain without a loss;" and is it not possible that this surplus of numbers in the brood-nest may become a deficiency of energy in the super? Indeed, it will unless the apiarist interferes; and it is questionable whether, even after these bees have been distributed to the best advantage, they are of much value, as their energy has been greatly "diluted."

It is true that "in union there is strength;" but the strength of that union depends on that of its components. In the inevitable struggle for existence of all creatures does not an increase in the reproduction of the species indicate a decrease in the vitality of the individual? and can one not read in this extra egg in question a prophecy of earlier death to its occupant?

What causes this prolificness in the queen? One factor, and not the least, is in-breeding. It is a biological fact that mating individuals of distinctly dissimilar

characteristics produces a progeny less prone to prolific reproduction. Would not, then, a cross between two strains of different characteristics produce the desired hardihood and longevity? It is true that prolificness would be retarded, and, possibly, beauty be lost; but what of it? Are these the vital factors which reimburse the bee-keeper for his labor? Such a cross has been favored by the lights of beedom in the past, and is still advocated by many of no mean standing. However, as the first cross produces the salutary effect, the continued hybridizing is to be deplored, for it causes too great a reaction—that is to say, it tends too much toward sterility.

Instead of trying to eliminate this dissipation by the continued hybridizing of colonies already crossed, it would be better to select those from which to breed that do not show this riotous tendency at all—colonies that have established their worth as honey-gatherers; colonies that one knows fairly well, and that will respond to some general system of manipulation. Mr. Doolittle, p. 144, March 1, 1913, gives valuable hints on how to select such colonies, and I heartily agree with him.

Knox, Ind.

Heads of Grain from Different Fields

Few Goldens Found True to Name, but Those Few were Good Workers

It is to be regretted that there has been so much depreciation of golden bees in the columns of the bee-journals. First of all, I want to say that I am not a golden "bug." Always I want yields; and where my bees do not give yields they are discarded. Mainly the cause of the feelings against goldens is the breeders who persist in breeding for color to supply the demand for yellow queens and leave yields to take second place in the qualities of their queens. Some of the greatest bee-men in the country prefer very yellow bees. Last year Dr. Miller's yellowest bees gave the best yields. However, that may not be the leading attribute in his bees, and I don't know that he advanced any such theory.

Last year I spent about \$100 buying golden queens of various breeders in the United States, mainly to see how yellow their product was, and to try them out for yields. I never bought less than six at once, and gave them a thorough trial. Of course, I did not try out all the goldens in the country, by any means. However, out of sixteen breeders I found just three whose queens would really pass for decent goldens, and all three of these strains proved good yielders. To me this proves too much breeding for color alone. Can any thing more surely kill the golden demand?

In querying advertisements, and writing for prices to these breeders and other beekeepers, I found a most lamentable lack of even common business decency in the answers. In one case I waited 22 days in the height of the season for prices of queens. The breeder lived 22 hours from me by mail, I found by investigation. Many dealers have told me that bee-keepers are often very unbusinesslike in answering queries for them. Seemingly these men, particularly queen-breeders, are afraid to figure a little service cost against the gross profit made on their queens. (Several breeders wrote me letters containing misspelled words and mistakes—some on the typewriter that would have made me weep if one in any other business went after my patronage in such a manner.)

For my location, goldens are best. Three-banders are nearly as good. I have never tried other races of bees. However, it is lamentable that some breeders send out "goldens" which are hardly more than quite yellow three-banders. Goldens should be yellow all but the very tip. I never received goldens from reliable breeders which weren't so marked. Many times I know golden breeders are asked if there is Cyprian blood in their bees to give the color. There may be in some; but the breeder who can't breed up a yellow strain without Cyprian blood had better go out of business. Certainly he is selling a fake if he uses it.

Common sense will enable one to breed yellow bees by selection. However, they must be where purity of mating is insured. To my notion the yellowest queens should go for queen mothers, while the highest yielders among the yellowest should go for drone mothers. But never a breeder for either purpose should be chosen unless they are well above the average in yield. Patrons will pass up your "dark" queens sold for goldens when they are business-getters in yields. Drone mothers should be the highest yielders, for to my notion, as with chickens, the male line carries the quality of yield better than the mothers. Some breeders keep too many colonies in their mating-yards. There shouldn't be any more than are actually needed in the yard. There is too much likelihood of letting colonies go where there are too many, and where some breed undesirable drones. Every breeder owes that much to his patrons.

Fakirs exist because the buyers don't investigate their claims. The time is rapidly coming in bee-

keeping when the man who doesn't deliver the goods must get out. It is so in yields. It will be true in breeders. Fair business methods deserve patronage, and nobody knows it better than the fellow who once gets stung.

Plainfield, Ill.

KENNETH HAWKINS.

An Extraordinarily Good Colony

I had the best honey crop last year that I have ever seen in this locality. The bees just rolled in the honey in June and July. I had one eight-frame colony of red-clover Italians that would fill a 28-section super in four days when the white-clover yield was at its best. My crop for the year was 675 pounds from seven colonies, spring count. This one eight-frame colony made 17 shallow extracting-combs of honey and 168 4 x 5 sections, most of them fancy. I think that this queen is worth a lot to me. The same colony made seven supers of honey in 1912. The queen was four years old last fall, and the colony has swarmed but once, which was during the first year after I got her. On that occasion, for some reason the queen could not fly, and my son picked her up on the ground and put her in a cage until I came home. I took from the hive a couple of cells that I wanted, and destroyed the rest and put the queen back and she is there yet. She is not clipped, for she has good wings so far as I can see. She is the largest queen I have ever had.

During the four years that I have handled this colony I have been stung but once, and that was when I pinched one of the bees. When the frames are taken out of the hives the bees stick closely to the combs and do not fly around my face. They can be handled without veil or smoke.

There have never been any queen-cells in the hive except that one time mentioned above. All that I do to prevent swarming is to remove the $\frac{1}{4}$ strip at the back of the bottom-board and put a piece of wire screen in its place during hot weather.

Elizabeth, Pa.

AMOS E. MEYERS.

Breeding for Honey Instead of Color

While I am not an extensive beekeeper I breed for honey rather than for color. About the first of June I go through my yard watching the fronts of the hives until I find the one I want. Then I look inside to see whether the bees of this particular queen are gentle and evenly marked, also whether the combs are well filled with brood from top to bottom. Then I find the queen to see whether she is leather-colored with a bit of black at the tip. If so, all right. If not, I look further for one having those markings.

I prefer to have the workers go out of the hive like a bullet, and when they return drop on the alighting-board and hurry inside. Furthermore, I want a queen whose bees enter the super readily, whether producing comb or extracted honey.

Referring to the record of the colony in question I make sure that her bees winter well, and that they do not daub the sections with propolis badly.

It is just as important to have the mother of the drone show these good qualities also.

Cattaraugus, N. Y.

HAROLD W. SCOTT.

Colony Fed Artificial Pollen Ahead of the Others

Rye graham flour may be used as a substitute for natural pollen. In the spring of 1913 I fed a colony of bees rye graham flour. This colony swarmed out May 26, while all the other colonies did not swarm until after June 10.

ADOLPH C. ROSENQUIST.

Parker's Prairie, Minn., Feb. 27.

Our Homes

A. I. Root

I pray that they may all be one, as thou, Father, art in me, and I in thee, that they may also be one in us, that the world may believe thou hast sent me. JOHN 17:21.

I am come that they might have life, and that they might have it more abundantly.—JOHN 10:10.

DOUBLING UP THE COUNTRY CHURCHES, ETC.

Perhaps we could leave out the word "country" and consider for a moment doubling up churches in general—city churches and all. Read the following:

Mr. Root:—We like your Home talks. We wish to ask you a few questions. Is the church of Christ celestial only, or is it a part of the world?

The Comforter is to guide us into all truth. How, then, can Christians differ?

Are not divisions carnal, and classed with the fruits of the flesh?

Do you justify the existence of sects?

Rev. W. L. Beers, of Topeka, Kan., it is said, killed his wife because she was a Catholic. Can you not pray to God for some light on this subject, and give us a sermon on unity?

Guildford, Kan., July 7.

T. & H. SHORT.

My good friends, I presume you have read what we gave on the subject on page 659, Sept. 15. While I am hoping and praying that there may be a "doubling-up" instead of having a few more churches started every little while, I think I realize somewhat the difficulty of rushing things in this direction too fast. There are, all over the world, people who are, comparatively speaking, good and earnest Christians who probably will not be persuaded to go into this doubling business. I am inclined to think it is the old and gray-headed people, mainly, who stick so tenaciously to their own particular denomination. Some years ago in Northern Michigan my good friend Rev. A. T. Reed and I visited the homes round about Bingham, Mich., in the endeavor to collect the scattered Christians and revive the church in that community that seemed to have gone to pieces. The greater part of them absolutely refused to drop theological differences and unite in Christian fellowship. Almost the only hope was among the younger members of the Sunday-school who have never got hold of doctrinal points. With childlike innocence—that is, innocence of the things that our fathers and mothers had quarreled over—they came with enthusiasm, and in a little time the community that had open saloons and baseball on Sunday was made over. I told you that, during my recent visit, the saloon had died out for want of patronage, and a very good congregation met in that little Bingham church.

Now, my good brothers, let us be careful about hurrying matters to such an extent

that we stir up again old disputed points. As things are now, I am inclined to think it better that there should be different denominations. You probably know how often good people differ in regard not only to theology but questionable amusements, etc. Some are loose in their ideas, and others are too strict, and quite a good many will tenaciously stick to unimportant matters. While this is true, is it not well, at least to a certain degree, for people who think alike to get together and hire a minister who believes and thinks as they do, but who are willing, notwithstanding, to leave minor differences, and go to work unitedly for temperance, for sanitary measures, for good roads, and for good government, etc. Our good friend E. E. Hasty, one of our old shining lights in bee culture, will be remembered by our older readers. He went so far as to insist that sects be done away with entirely, and let every man worship God according to his own notion. Let us accept the fact that there are almost no two people exactly alike. God, in his great wisdom and love, has probably thought best to make us different; and what would the world be—how could there be such a diversity of work now going on as there is, were it not for these differences? As it is, there are a multitude of different things for us to study up and work out. We can, each one of us, have a different hobby; and it is really a delight to me to see one man or woman take up one thing and another something else, and push it to its fullest development. For several years good people laughed at me, and were almost afraid to trust me because I was crazy on bee culture; and yet God has permitted me to live long enough to see our institution buy and sell honey to an extent that I would not have believed possible then. In spite of the high cost of living, and other difficulties that block our way, there is room enough for all, and peace and plenty for all, if we are only willing to reach out and accept it from the hand of the loving and gracious Father.

EMPTY PEWS IN OUR CHURCHES; A SUGGESTION AS TO THE CAUSE.

Dear Mr. Root:—I am enclosing a clipping from one of the New Brunswick papers which I thought might interest you. It shows that all of our preachers are not so busy reading ancient history or studying Greek that they forget that they are living in an age that has problems of its own. I wonder if the reason for the empty pew is not to be found in the fact that many of our ministers are so busy search-

ing the literature of the ancients for brilliant illustrations and high-sounding phrases that they do not recognize the needs of the present day. I believe that, if our ministers would burn half their books, study the newspapers, and stick their noses out of their studies occasionally, they would begin to preach sermons that would hold the multitudes. At any rate, St. James church here was packed so that there was hardly standing room last night, simply because Rev. Mr. Yard had announced that he would reveal his discoveries, and the discoveries were those that concerned the people. Mr. Root, I believe that, if we had more such preachers—men who can fit religion into politics and everyday life, the world would grow better many times faster than at present.

HARRIS T. KILLE.

New Brunswick, N. J., Oct. 27.

My good friend, I have for a long time been "hungering and thirsting," if that expression is not too extravagant, to hear our ministers touch on things of the present day a little more. Just now, however, here in our Ohio home, as you may judge from the two sermons I have given in these Home papers, my wish has been gratified. Perhaps I should explain to our readers that the quotation alluded to by Mr. Kille comes from the New Brunswick, N. J., *Times*. The pastor mentioned, Rev. George W. Yard, said in his sermon, "A howl went up to the ceiling when I asked the ministers at a convention they held, to help me in this fight, so I started out single-handed." On Sunday and Sunday night he visited 80 saloons. Only 6 out of the 80 were closed up according to law. He tells in his sermon where he went, what was going on, and mentioned names. No wonder that St. James church was "packed so there was hardly standing room."

Thou shalt not kill.—EXODUS 20:13.

We clip the following from the Cleveland *Plain Dealer*:

THE PENALTY FOR MURDER.

Twelve years ago a young tramp was found guilty of a most revolting crime. He had drifted from the east, a worthless derelict. An old and crippled watchman took pity on the tramp and repeatedly befriended him, sharing his meager lunches with him, and giving him shelter.

In return for this kindness the youth deliberately planned the murder of his benefactor. He waited till pay day, and then beat the old man to death with a coupling-pin, stole his money, and fled. He was apprehended, and charged with murder in the first degree.

The verdict of the jury was an utterly unjustifiable compromise—murder in the second degree. If the defendant was guilty of any crime it was first-degree murder; but the jury could not be brought to send him to death. The death penalty, as established by Ohio law, was responsible for a verdict which was wholly at variance with the facts. And yesterday, after having served a dozen years, the prisoner was released from the penitentiary, paroled by order of the Board of Pardons.

When I first saw the above I could hardly keep still. It comes right on the heels of the report of another murderer who has

been pardoned. You may recall a temperance detective (Etherington) who was cruelly strung up by a drunken mob at Newark, Ohio. The leader of that mob has been "pardoned out" after serving only three years in the penitentiary. Has this young tramp, who seemed to have no scruples about murdering his benefactor, and a poor crippled man at that, been pardoned out, as we must look at it, to go and do the same thing again? The only excuse we have for such pardoning is that he had a good record for behavior during the dozen years. Now, if the daily paper had stated that he was truly penitent for his crime, had expressed sorrow and regret, and had started to lead a Christian life, giving reasonable evidence that he was truly born again, perhaps it might be well to pardon him out; but even then there is the record standing before the world as a precedent, and other men (and boys) seeing him get off so easily would be more likely to be tempted to do likewise. The paper does not tell us that his crime was committed under the influence of drink. We only read that he had been in the habit of going to that good old soul when he was hungry; and that was the reward the good man got for having had pity on the poor tramp. And, by the way, how does it come that this young vagabond had no money to pay for food? He was in the prime of life; and, so far as we know, was well and strong. In the great city of Cleveland there is all the time an unfulfilled demand for help—any kind of help. Just at the present moment, while I dictate these words, we are paying skilled masons who came down from Cleveland almost a dollar an hour; and the mason's helpers that came along get half as much. Yet able men are going about begging for "cold victuals," etc.

"THOU SHALT NOT KILL."

Somewhat more than a month ago a mob of citizens of Spartanburg, S. C., dynamited the outer gate of the jail and demanded of Sheriff White that he yield to them the person of a negro prisoner. Sheriff White stood before them, supported by a single deputy. There was a revolver in Sheriff White's hand.

"Gentlemen," he said, "I hate to do it; but, so help me God, I'll kill the first man who comes past that gate."

Perhaps the members of that mob knew Sheriff White well enough to understand that he meant precisely what he said. Perhaps they were influenced by mere cowardice. But, at any rate, the mob evaporated.

The negro who was the object of the mob's efforts has now been tried by a jury of white men, and has been found not guilty. There was, it appears, never any thing but flimsy suspicion against him. Mere suspicion had been sufficient inspiration for the Spartanburg disciples of Judge Lynch.

The above, which I clip from the Cleveland *Leader*, vividly illustrates several im-

portant points—first, the foolish, senseless fashion that some crazy people have got into their heads of taking the law into their own hands. Second, that, notwithstanding the command, "thou shalt not kill," there is a time when it is right to kill in order that we *save* the lives of the innocent; and may God be praised that we have men like Sheriff White who dare stand before a crazy mob and say, "So help me God, I will kill the first man who comes past that gate." I hope, if the time of trial should come, God will give me grace and courage to stand by this man. No wonder the mob "evaporated." The above clipping does not say whether that crowd was drunken or not; but judging from what I know of such things, the mob was probably fired up with beer or whisky. That is why it is getting to be the fashion of closing the saloons whenever any violent outbreak occurs. After it was all over, it turned out that the poor colored man was entirely innocent.

In our peaceful town of Bradenton, Fla., a poor fellow was dragged out of jail and hung up by just such a crowd. The sheriff excused himself by saying that "it was not possible to stop them." The colored man who worked for me informed me afterward that the poor fellow who was strung up was not right-witted, and probably was innocent of any deliberate wrong. Of course the mob did not know about this, and I fear some of them would not have cared if they had known. The authorities of Bradenton have recently broken up several "speakeasies" in the colored part of the town.

GARDENING AND GODLINESS.

Years ago I did a nice little business growing and selling horseradish. We had a grater run by the machinery in our factory, and our women employees ground the roots and put in our 1-lb. honey-bottles, and these were carried fresh every day on our market-wagon. As the bottles were returned next trip, we sold a 1-lb. jar full for 10 cts. Counting every expense as far as I could, the grated radish cost only about 4 cts., but I tell you it took some "bossing" to secure smooth running all the way from "producer to consumer." With the above preface, let us consider another successful(?) horseradish "son of toil." See below from first page of *Cleveland Plain Dealer* of Dec. 26:

At the point of a revolver two masked burglars early yesterday morning compelled Samuel Hirt, 2216 E. 40th St., horseradish manufacturer, to march downstairs in his night clothes to a first-floor room of his home, where they forced him to unlock a safe containing \$739, the receipts of his Christmas marketing trade.

Police last night still were searching for the robbers, who fled from the house in haste as soon as they had snatched the rolls of bills and bags of currency that the safe held.

Aroused from sleep by noises in the rooms below, Hirt left his bed and went to the top of a staircase, where he pressed a button that lighted the lower hall.

He saw a masked man standing at the foot of the stairs with a revolver pointed up at him.

"Turn that light out and be quick about it," the burglar commanded hoarsely, giving a flourish of his revolver to emphasize the order.

Hirt didn't hesitate. With his hand still on the button he gave a push that darkened the hall below him. Almost at the same instant a pocket lamp in the hand of the burglar sent a stream of light up the staircase.

"Samuel—Samuel, what is the matter?" Mrs. Hirt called to her husband from the bedroom.

"Don't say a word," commanded the burglar.

"Now, come on down the stairs."

As Hirt walked slowly down with his hands in the air the burglar at the foot of the steps called to a companion in another room.

"Come on in, Jim; it's easy now," he said.

A moment later a second masked man walked into the hall.

Indicating that they were familiar with the location of the rooms of the house, the burglars compelled Hirt to go to the room containing the safe.

"Unlock it," one of the robbers ordered crisply.

With trembling hands the market man figured the dial to solve the combination. In his nervousness he was unable to open the doors quickly enough to satisfy the robbers.

"Remember, no bluffing goes," one of the burglars warned. "Open it in a hurry or we'll send a bullet into you."

Again Hirt turned the dial and this time the large handle on the door turned when he tried it. A moment later the door swung open. The electric flash lamp lit up the interior and showed the treasure the robbers were seeking.

Hastily stuffing the money into their pockets the robbers turned to Hirt with a parting warning.

"Don't call for help until we get out of the house," they said.

The light flashed out and the robbers headed for a rear door.

A few moments later Hirt rushed into the street and called for aid. A group of excited neighbors gathered and a call was sent in to police of the third precinct. No trace of the burglars was found.

Hirt conducts two horseradish stands in the downtown market district. One of his shops is at Huron Road and E. 4th St., the other at Bolivar Road S. E. and E. 4th St. The amount in the safe, \$739, represented his receipts for the three days preceding Christmas.

A half-dozen other burglaries on Christmas eve were reported to police yesterday. Hold-up men also plied their trade actively according to reports from victims.

Do you ask what the above has to do with godliness, or what it has to do with us? Listen: Friend Hirt is an honest, hard-working man. Through days of toil he had reaped his final harvest, and was sleeping the sleep of the just. His money, taken in late at night, was deposited in a good safe. He was a prudent man; but what did his "safe" or any safe amount to? A fiend in human form coveteth his hard-earned savings made from growing and selling horseradish. We are sometimes tempted to ask, "Is there really a God above?" If so, why does he

permit such things? Joshua asked the question, you may remember, and Jehovah told him it was because there was an "Achan" in their midst. There is an Achan in the big city of Cleveland, and all the increased force of policemen will never restrain the "carnival of crime" (*Plain Dealer* again) until that Achan is disposed of. You and I are suffering because of him; we are all suffering; and God will permit things to go on from worse to worse until we wake up and "do something." A thousand or more saloons have just been "licensed." In God's name, why not license these *masked men* we have been reading about, to go on with *their* "industry"? Yes, and then let them buy and sell *these* licenses. The same daily tells us three *schoolboys*, excited by the way "hold ups" succeed, got a pistol and made a man give up his money. Several times, when there is labor or other troubles in large cities the saloons have all been closed. Is it not nearing the time when the mayor and chief of the police decide, as a last resort, to *destroy* this Achan, as Kansas, Maine, and other States have done?

SOWING GOOD SEED, ETC.

I think I have explained before, that, when we are down in Florida, Mrs. Root and I attend the Presbyterian Church. In fact, I should like to say we are a part of the Presbyterian Church—that is, if the good pastor and the good people there will not object. Well, of late my heart has been warming more and more toward our Presbyterian people; and here is a letter from a good Presbyterian brother that I hope will warm the hearts of all readers of GLEANINGS, no matter what denomination they belong to:

Mr. A. J. Root:—I am largely indebted to you for the contents of the "sticker" which I enclose. I am a Presbyterian minister. I have been on the road for a number of years in the interest of our church papers. After I had been traveling for some time I noticed that "drummers" often had "stickers," and it occurred to me that I might have one with which to "drum up" the Lord's business. But I was much at a loss as to the form. While in this dilemma I read one of your articles, in which an expression very much like the first of my "sticker" occurred. I took it, changed it somewhat, and had a thousand of them printed. My intention was to create a more devotional reading of the Bible. When I would hand them to some one I would say, "Stick that in your Bible. It is a good little prayer to offer before you read your Bible, or when you come to a good passage, or a hundred times a day when things don't go right."

At first I did not have my name on them. I gave one to a drummer. He said, "That's all right, but it hasn't any name on it." I said, "I do not believe that people are interested in my name."

He put his hand in his pocket, and, taking out a dollar, he said, "Here is a dollar. Have a dollar's

worth of those printed at my expense, and put your name on them." So I have been putting my name on them ever since.

I thought you would be interested in this, and thought it nothing more than right that you should know the good your article was doing.

If any of your readers would like to have some for their own use, or for distribution, I will take pleasure in sending them free of charge if they will send a stamped self-addressed envelope, and say how many they want.

Hulbert, Okla., Sept. 22.

E. P. KREACH.

The sticker he alludes to is a sort of gummed label, or card, and below is what we read on it:

* * * * *
* Teach me, O Lord, just the *
* lessons you want me to *
* learn, and make me willing *
* to do what you want me to *
* do that I may be thy child *
* indeed.
* E. P. KREACH, Temple, Texas
* 1918
* * * * *

Dear friends, I hope you will read that over and over. And now let me ask you the question, does it seem possible that any man or woman who reads and endorses that little prayer (for indeed it is only an enlargement of my little prayer, "Lord, help"), can be selfish or tricky or deceitful? God forbid.

SEVENTY-THREE YEARS OLD, AND—"THESE ARE THE BEST DAYS OF MY LIFE."

Dear Brother Root:—Several months ago you made mention in your Homes article of a new discovery you made. As I read it I was reminded of an experience of my own more than forty years ago.

One day my hired man said to me, "On next Saturday evening there will be a preparatory service at the Lutheran church. There will be communion services on Sunday." I did not say anything to the Lutheran brother, but I wondered what kind of service that might be. I had never heard of such a meeting. However, I decided to go. But before I left I went into my bedroom and got down on my knees and asked God to keep me from going as a critic, but that I might get something good. They had an after-service, and the pastor began to ask his members questions about their daily life; and as he asked, and they gave their answers, I would mentally ask myself the question, and give the answer. I can remember only two questions. One was, "Do you have family worship in your families every day?" I, of course, could say "Yes." The next was, "Do you read God's word in your families every day?" To that question I had to say "No." The spirit of God had been talking to me about that very duty, but I did not take heed to it. We had a custom of singing a hymn, then have our prayer service. But there that Saturday eve, in that Lutheran church, I promised God I would read his word to my family every day, and I believe I have kept my promise up to this time. The children then were in their teens and under. Now they are all grown to manhood and womanhood, and I will ever praise God for the determination he put in my heart to live for him.

I am now in my 73d year, and these are the best days of my life, although the half of my family, which means my wife and six children, have passed over, and I am here with six children and twenty

grandchildren and two great-grandchildren. My children were all converted, and some of the grandchildren. I expect to meet them some day. But most of all, and first of all, I want to see my Savior.

Abilene, Kan., Oct. 18. N. G. HERSHEY.

Dear friends, the above is the record of one of our good veterans who, by a chance word of a good faithful pastor forty years before, took up Bible-reading while supporting a family of twelve children. I do not know, and perhaps nobody but God

knows, the influence and effect of reading the Bible every day for forty years. It had its influence, too, you may be sure on the grandchildren as well, and perhaps on the great grandchildren. And, besides all that, he is enabled to stand up before us in this little "class meeting"—for that is really what it is—and "testify" that, even though he is past threescore and ten, "these are the best days of my life."

High-pressure Gardening

ANOTHER "GREAT INVENTION" IN THE LINE OF "CHICKENS" AND "GARDEN SASS."

Before we can grasp the "magnitude" of my discovery in full, I shall have to take up some other lines leading up to it. In making garden in years past I have bought many loads of stable manure; for until I came to Florida I had got to thinking if it is true that it is "money that makes the mare go" it is about as true that it is "manure that makes the garden grow." Well, one drawback on the manure, especially if bought at the livery barns, is the weed seeds that come with it. Besides the weed seeds are the seeds of oats that seem to pass the digestive organs with vitality enough to grow "right smart" oftentimes, when they must be pulled out by hand. I remember mulching some choice strawberries with stable manure, and the oats came up so thickly we had almost a green lawn. Really, there is need that Terry and Fletcher give the horses lectures on chewing their food more thoroughly. Grinding the oats would certainly prevent germination; but, if I am correct, our experiment stations have not reported any very great advantage in ground feed. There is certainly a big waste in feeding oats along in this line; but I really don't know the best remedy. I believe it is generally agreed that poultry have a "mill" that God gave them that pretty well cuts off all chance of germination. Below is a clipping from the IHC Almanac that may have it about right:

It is a pretty generally accepted fact among farmers that, to get the greatest feeding value from grain, it should be ground. Investigation has demonstrated that in some instances as high as 85 per cent of grain can be saved by feeding it ground. The average saving, however, will probably be about 12 per cent.

For several years past we have kept dry sand under the roosts in all our poultry-houses, and Wesley has swept up the droppings the first thing every morning. They are kept in tin cans until wanted in the

garden. Since we have done this we have had little or no trouble from vermin. Another reason is that almost every day we have visitors who take GLEANINGS—oftentimes ladies; and when I "show them around" it is worth a good deal to me to find no droppings visible in any of the poultry-houses. Now you are about ready to take in my "discovery."

Mr. Rood, in looking over and admiring my garden a few days ago, said he believed some stable manure, even if it did cost \$3.00 a load, would be a profitable investment on some of my new ground. I put a heavy dressing on about 100 square feet where I sowed alfalfa and sweet clover. I also put on half a pailful of air-slacked lime. The seeds came up finely; but there was also an excellent stand of oats as usual. After spreading two big loads on the garden where it seemed to be needed, there was about two wheelbarrow loads left. I told Wesley to put it under the poultry-roosts. There were probably oats in this like the rest; but there were very few when night came, and no poultry manure visible; and Wesley says fine dry stable manure is very much less work to handle than heavy, useless sand.

Terry, in all his writings, has been very emphatic about having stable manure worked up fine before putting it on the land. Do you know of any "machine" that will fine up manure as will a hen and chickens? When I saw how it worked I got a whole load and put the manure six inches deep under the roosts of all our eight houses. When we used sand, and especially when we fed much lettuce, the droppings were often so moist they went on the garden in lumps or chunks; and often in hoeing I spent quite a little time in breaking these up and mixing with the soil. The hens now do all this, and we have the floors all looking tidy if we leave them to the care of the hens a week or more.

Can you imagine any better way of keep-

ing and handling the droppings and applying them to the land, than mixing and composing them with stable manure?

In conclusion I suppose I shall have to own up, as with many of my other discoveries, that it is *not* exactly *new*. In fact, it is just the way I kept chickens when a lad of ten or twelve, more than 60 years ago. My chicken-house was a "lean-to" back of the horse-stables. I fixed a door under the

sill of the barn so manure could be shoveled into the care of my fowls easier than to lift and throw it out at the little door. The chickens dug it over and over, even in zero weather, and I had eggs to sell when no one else did; and when it came summer time, "our garden" (mother's and mine) was ahead of the whole neighborhood because of our supply of fine, dry, pulverized poultry and stable-manure compost.

Health Notes

"IF EVERY ONE DID AS TERRY DOES."

V. W. Clough, Brewster, Wash., writes to *GLEANINGS IN BEE CULTURE*, heartily endorsing *The Practical Farmer's* health book. And then he adds that, "If we all lived as Terry does, every thing in the eating line would be a drug on the market, with the possible exception of fruit; it would mean the bankruptcy of our nation." You can leave out the "possible." The fruit would all be eaten, and much more called for. We see no reason why the demand for vegetables would not be about the same as at present. There would be less grain products eaten, because we would get more good from a smaller amount, on account of more thorough chewing. So there would be far more grain to ship to England, which would be good for the nation, and would in no way injure the producers. White beans are a leading article of food in New England, but they are not as much used as they should be in many other sections. If every one lived as Terry does, the market price of the legumes would be higher than at present, unless many more were raised. Terry bought 3½ gallons of extracted honey last winter. If everybody used as much, the price of honey would go soaring. He bought three gallons of pure olive oil, and will soon have to get another. Growers could not begin to supply the demand if every one ate as much. His wife and he eat from 1½ to 2 pounds of best creamy butter per week. The price would go higher than it is now if every one used it as freely. If all let meat alone, as Terry does, because he can do better, there would be vastly more to ship to Europe, where it is wanted. The nation would actually gain by it. If Terry's simple, wholesome way of living were followed by all it might make a temporary trouble for egg-producers, but soon they would find a way to can or evaporate their products and ship them to countries not so well posted. This would not bankrupt our nation, although it might be considered as not loving our neighbors as well as ourselves. As to adulterated, poisoned, and injurious articles, they ought to be "a drug on the market." If every one shunned liquor as Terry does, there would be enough more grain to sell to pay soon the huge national debt. And there would be hundreds of millions more money in the hands of the people for comforts and real luxuries. Terry has never used tobacco. If every one did the same, the saving in money and the greater efficiency of our young men would soon boom business away out of sight of what it is in any other country on earth.

The above comes from the *Practical Farmer*. If Terry means that he and his wife use perhaps 3½ gallons of honey a year it certainly would send the price of honey soaring if every one used as much. If the necessities of life, especially butter, eggs, and milk, should get to be a "drug

on the market," it would be a great boon to the hard-working people who are at present complaining of the "high cost of living." When eggs get down to 20 cts. a dozen, instead of 30 and 40, in my Florida home, I always feel happy, because it is such a blessing to poor people, even if it does come a little hard on the "chicken man." May God speed our good friend Terry and his hosts of followers.

CASSAVA—SOMETHING MORE ABOUT IT.

We clip as follows from the *Florida Grower*:

In Jamaica a new industry has recently sprung up in the line of making cassava wafers which are now exported to the United Kingdom and the United States. These wafers are made in several forms from the huge coarse "bammies," consisting of the grated root with a little of the starch pressed out, made into thin sheets and toasted or roasted or fried, to the delicate "tea wafers" which for some time have been used at fashionable luncheons and afternoon tea parties, especially in Boston. Nowhere is there any thing else in the bread line quite so good, in my opinion, as hot-buttered "bammies" fresh from the fire.

Not only the wafers, cookies, and cakes, but also the new breakfast foods, tapioca, flour, etc., made from the grated root treated in different ways, are bound to be popular.

GETTING RID OF ROACHES, ETC.

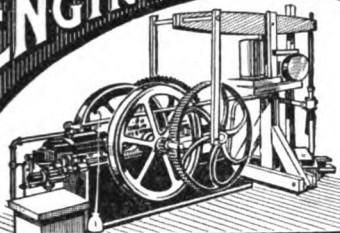
Some years ago I saw an article in a newspaper saying that roaches could be destroyed by placing in their reach a mixture of flour, sugar, and plaster of Paris, all finely pulverized. The mixture is to be put in a dry place. I don't remember the proportions of the different ingredients; but the readers of *GLEANINGS* in Florida might try equal parts of each.

Portland, Ore., Aug. 25.

C. WANTY.

The above would certainly be preferable to poison of any kind; because if you poison the roaches, and the chickens afterward gobble them up, you kill the chickens also—at least so they tell me down in Florida. In the above it is the plaster of Paris that does the business, and chickens do not mind plaster of Paris. The same thing has been frequently recommended for rats and mice. After they take a drink, the plaster sets.

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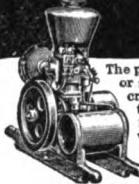
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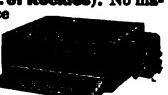
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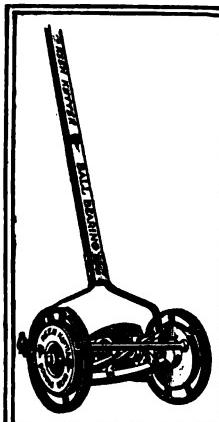
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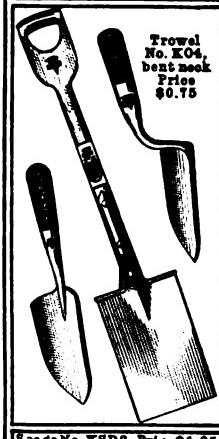
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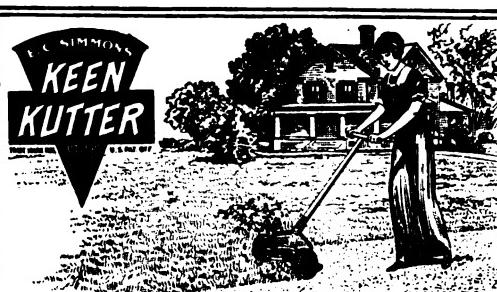
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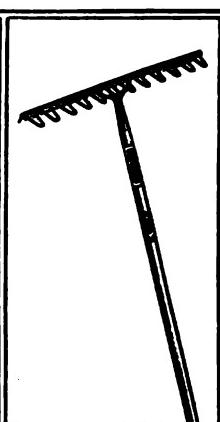
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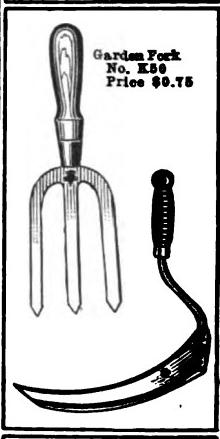
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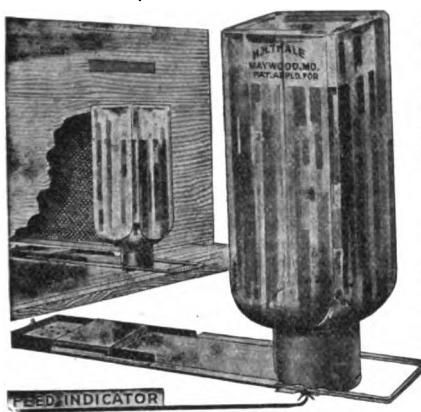
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QUEENS	Nov 1st to May 1st			May 1st to June 1st			June 1st to July 1st			July 1st to Nov. 1st		
	1	6	12	1	6	12	1	6	12	1	6	12
Untested	\$1.50	\$7.50	\$18.50	\$1.25	\$6.50	\$11.50	\$1.00	\$5.00	\$9.00	\$.75	\$4.00	\$7.50
Select Untested..	2.00	8.50	15.00	1.50	7.50	13.50	1.25	6.50	12.00	1.00	5.00	9.00
Tested	2.50	18.50	25.00	2.00	10.50	18.50	1.75	9.00	17.00	1.50	8.00	15.00
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300 fall-reared tested queens, ready to mail, \$2.50 to \$10.00 each.

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THREE-BANDED ITALIANS READY TO MAIL NOW

Golden Italians	After April 15			After May 10			After June 10				
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Untested..	\$1.00		10.00	75.00	\$.90	\$4.50	9.00	70.00	\$.70	\$4.00	\$7.75
Tested.	1.25	6.00	12.00		1.00	5.00	10.00				

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My three-banded Italians captured first prize again at Dallas State Fair and the Cotton Palace Fair at Waco. This speaks for itself. None better.

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GOLDEN ITALIAN Queens

Raised from straight five-band mothers, mated with select golden drones, $\frac{3}{4}$ miles from three-band apriary. These queens are large, vigorous, and prolific; the bees gentle and hustlers, and are noted throughout the U. S. as a disease-resisting strain. Purity of mating, safe arrival, and satisfaction guaranteed.

QUEENS	May 1st to June 1st			June 1st to July 1st			July 1st to Nov. 1st		
	1	6	12	1	6	12	1	6	12
Untested	\$ 1.25	\$ 6.50	\$11.50	\$ 1.00	\$ 5.00	\$ 9.00	\$.75	\$ 4.00	\$ 7.50
Select Untested.....	1.50	7.50	15.50	1.25	6.50	12.00	1.00	5.00	9.00
Tested	2.00	10.50	18.50	1.75	9.00	17.00	1.50	8.00	15.00
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J. W. TAYLOR & SON, Beeville, Bee Co., Texas

SAVE YOUR QUEENLESS COLONIES

Introduce a vigorous tested queen. We can supply them by RETURN MAIL for \$1.00 each.

UNTESTED queens, ready April 15, single queen, \$1.00; \$9.00 per dozen. No disease. Satisfaction guaranteed.

J. W. K. SHAW & CO., LOREAUVILLE, LOUISIANA

Three - banded Italian Bees and Queens!

Guaranteed safe arrival and satisfaction. Untested queens, 75 cts. each; \$7.50 per dozen. Tested, \$1.50. Choice breeders, \$2.00. Nuclei, \$1.25 per frame, good supply of bees. Half pound bees with queen, \$2.00. One pound bees with queen, \$3.00, full weight. Full colony in eight-frame hive with queen, \$6.50; in ten-frame, \$7.50. Best mail and express service in the South. Only 12 hours to St. Louis, Mo.

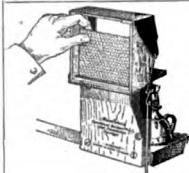
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In raising comb honey cut the time of putting up sections in half by using the New Rauchfuss Combined Section-press and Foundation-fastener. Price \$3.00 delivered anywhere in the United States. Satisfaction guaranteed or your money back. . . . Write for illustrated circular to-day, to

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This is a revised edition of "A Year's Work in an Out-apiary," containing the latest ideas of the author, Mr. G. M. Doolittle, of New York, telling how he has employed them and secured during a poor season an average yield of 114½ lbs. per colony. 1913 edition ready for mailing. 50 cts. postpaid.

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cuts fast, easy, fine; never clogs.
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Classified Advertisements

Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the Classified Columns or we will not be responsible for errors.

HONEY AND WAX FOR SALE

FOR SALE.—Choice extracted honey in new 60-lb. cans at 9 cts. per lb. J. P. MOORE, Morgan, Ky.

FOR SALE.—Finest quality buckwheat honey in cans and kegs. Clover honey all sold. C. J. BALDRIDGE, Kendalia, N. Y.

FOR SALE.—2500 lbs. good clover honey in 10-lb. pails at 9 cts., f. o. b. Kinde. Bargain in 1000 lbs. fall honey. GEORGE ASHWELL, Kinde, Mich.

FOR SALE.—No. 1 white comb, \$8.00 per case; fancy, \$3.25; 24 Danz. sections to case, six cases to carrier. WILEY A. LATSHAW, Carlisle, Ind.

FOR SALE.—3000 lbs. of fine extracted honey in 60-lb. cans, 9 cts. per lb. GEORGE RAUCH, Orange Mountain Bee Farm, Guttenberg, N. J.

FOR SALE.—400 lbs. good buckwheat honey in 5-lb. pails, well ripened; will take \$30.00 for the lot to clean up for the season. M. C. SILSBEE, Rt. 3, Cohocton, N. Y.

FOR SALE.—White-clover honey, none better. In 10-lb. pails, six in a case, at \$6.50 per case; 5-lb. pails, 12 in a case, at \$7.00 per case; $\frac{1}{2}$ -lb. glass jars, 24 in a case, at \$2.80 per case. Sample, 4 cts. Also in 60-lb. cans, very nice amber honey. HENRY STEWART, Prophetstown, Ill.

HONEY AND WAX WANTED

WANTED.—Comb, extracted honey, and beeswax. R. A. BURNETT & Co., 178 So. Water St., Chicago.

WANTED.—Comb honey and beeswax. State what you have and price. J. E. HARRIS, Morristown, Tenn.

WANTED.—Honey, extracted and comb. Will buy or handle on commission. Beeswax—will pay highest price. HILDEBETH & SEEGLEN, New York, N. Y.

WANTED.—Best grade white-clover and buckwheat extracted honey in cans or small barrels; the square five-gallon can, two cans to the case, preferred. Send sample, and quote best cash price delivered f. o. b. Medina, also f. o. b. Chicago, Ill. Can use quite a large quantity of both grades.

THE A. I. ROOT CO., Medina, Ohio.

FOR SALE

FOR SALE.—A full line of Root's goods at Root's prices. A. L. HEALY, Mayaguez, Porto Rico.

FOR SALE.—Full line of Root's goods at factory prices. E. M. DUNKEL, Osceola Mills, Pa.

FOR SALE.— $8\frac{1}{4} \times 5\frac{1}{2}$ camera and Edison phonograph. E. B. FAY, Alexandria, Minn.

FOR SALE.—Full line of Root's goods at factory prices. ELMER W. PALMER, Catskill, N. Y.

FOR SALE.—One two-ton motor truck. Write for particulars. MRS. F. B. CAVANAGH, Hebron, Ind.

FOR SALE.—Hatch wax-press, nearly new, for \$3.00. J. M. GINGERICH, Arthur, Ill.

SIXTY-DAY SEED OATS. Heavy yielders. Very early, including a clover catch. Recleaned. Sacks free. 90c. 10 bu. or over, 75c. GAIL T. ABBOTT, Rt. 3, Medina, O.

FOR SALE.—Root's goods and Dadant's foundation at factory prices.

SPENCER APIARIES, Nordhoff, Cal.

FOR SALE.—Plain section supers, fences, and holders, nailed and painted, cheap.

W. W. LAWRENCE, Centerville, Tex.

New crop of extra-fine quality alfalfa seed, \$6.50 per bushel; sacks, 25 cts. extra; also some sweet-clover seed. R. L. SNODGRASS, Augusta, Kan.

FOR SALE.—Better hives for less money. Beekeepers' supplies and standard-bred Italian bees. Write for catalog. A. E. BUDICK, Sunnyside, Wash.

The best of bee goods for the least money. Send for new catalog. Satisfaction guaranteed or money refunded. H. S. DUBY & SON, St. Anne, Ill.

FOR SALE.—Empty second-hand cans, two cans to the case; good as new; 25 cts. per case. C. H. W. WEBER & Co., Cincinnati, Ohio.

Beekeepers, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap. WHITE MFG. CO., Greenville, Texas.

FOR SALE.—100 lbs. white-sweet-clover seed, hull-ed, \$25.00, at Wayland, Mich., by R. L. SNODGRASS, Harrisburg, Col.

We are among the largest growers of alsike clover in this country, and offer good clean seed. Bushel, \$11.00; half bushel, \$5.75; peck, \$3.00. C. J. BALDRIDGE, Homestead Farm, Kendalia, N. Y.

FOR SALE.—Barnes New Combined woodworking machine with scroll-saw attachment. Perfect condition. Cost \$45. Will take \$25. WM. W. DEAL, Rt. 2, Huntley, Mont.

FOR SALE.—*Gleanings in Bee Culture* for years 1906, 1907, 1908, and 9 months of 1905; also a few odd copies; \$6 for the lot, charges not paid. JOHN A. SPURRELL, Wall Lake, Iowa.

The A. I. Root Co.'s Canadian House, Dadant foundation, bees, queens, honey, wax, poultry supplies, seeds. Write for a catalog. THE CHAS. E. HOPPER CO., 185 Wright Ave., Toronto, Ontario.

FOR SALE.—15 dovetailed bodies with new Hoffman frames, 10 extracting supers with new frames, 17 comb-honey supers, $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{1}{4}$ plain, 10 lids, 10 bottoms, 10 excluders, all eight-frame. \$20 for the lot. ROBERT SHOEMAKER, Rt. 3, Swedesboro, N.J.

FOR SALE.—One eight-frame Root automatic extractor; $1\frac{1}{4}$ h. p. engine; 100 Danz. supers with section-holders and fences; empty hives, both 8 and 10 fr.; Underwood typewriter; buzz-saw and emery; Peterson capping-meter; Hershiser wax-press; honey-tanks. MRS. F. B. CAVANAGH, Hebron, Ind.

FOR SALE.—22 $1\frac{1}{4}$ -story second-hand Danz. hives, brood-frames, and section-holders, practically good as new; \$1.50 each, $\frac{1}{2}$ of list price; 5 one-story, \$1.00. Bees were transferred; combs and frames boiled to melt wax. No disease.

A. MOTTAZ, Utica, Ill.

FOR SALE.—The Weaver automatic honey-extractor. It reversed at full speed; is simple and positive; saves 50 per cent of labor, and at the same time increases the output 50 per cent. A four-frame will do the work of an 8. Every one in the market for an extractor, send for particulars.

WEAVER BROS., Richmond and Falmouth, Ky.

The National Beekeepers' Association now buys supplies for their members. Send us your order, enclosing the same money you have to pay others, and we will buy them for you on the co-operative plan. If not a member we reserve the right to retain \$1.50 from the profits on your first order to pay your membership dues and subscription to the Review one year. Sample copy of the Review free. Address NATIONAL BEEKEEPERS' ASSOCIATION, Northstar, Michigan.

FOR SALE.—Root's goods at factory prices. Fresh stock and prompt accurate service. Let's get acquainted. L. W. CROVATT, box 134, Savannah, Ga.

The Beekeepers' Review Clubbing List: *The Review and Gleanings* one year, \$1.50. *The Review and American Bee Journal* one year, \$1.50. All three for one year only \$2.00. Dealers or those wanting to buy honey kindly ask for a late number of the *Review* having a list of 100 producers having honey for sale. Address

THE BEEKEEPERS' REVIEW, Northstar, Mich.

WANTS AND EXCHANGES

For bees, queens, or material—typewriters, violins, printing-press, write E. C. BIRD, Boulder, Col.

Will buy bees. Myself examine, pack, and ship. Write F. A. ALLEN, Philipsburg, Quebec.

WANTED.—Bees. Give full particulars and price. W. DAVENPORT, 2201 Pioneer Road, Evanston, Ill.

Will exchange for bees or queens, optical outfit, guitar, or sweet-clover seed. E. C. BIRD, 845 Pine St., Boulder, Col.

WANTED.—Bees in lots of 25 to 300 colonies, preferably within 250 miles of Detroit, Mich. A. W. SMITH, Birmingham, Mich.

WANTED.—Bees in modern hives in New Jersey, preferably on line of C. R. R. of N. J., or Penn. R. R. State particulars to T. EDW. DIENER, Elizabeth, N. J.

Fine Buff Orpington hens, exhibition birds, bred from Madison Square winners, trap-nested, finest quality. Will exchange for Italian bees. S. E. WASSON, Rome, Ga.

TO EXCHANGE.—Dynamo, magneto, storage battery, switch-board, marine engine, 45 ft. power cruising boat. Will sell any or all at half real value, and take it all in bees. HENRY CASWELL, Riverton, N. J.

WANTED.—To furnish every beekeeper within 500 miles of Boise, Idaho, with the best and cheapest bee supplies on the market, *quality considered*. Send me your order or a list of your requirements for 1914. Our catalog and price list will be mailed to you free. Order early and get the discounts. C. E. SHREVER, Boise, Idaho.

REAL ESTATE

FOR SALE.—Well-established paying bee and poultry plant near Chicago. P. AUGUSTIN, Orland, Ill.

For Sale at a Bargain, good improved $\frac{1}{4}$ or $\frac{1}{2}$ section farm near Bisbee and Douglas, Ariz. Best climate and best markets in the United States. Address the owner, 423 So. 5th Ave., Tucson, Ariz. 64947

To LEASE.—My home place on Phillipi Creek, Osprey Road; new six-room house, 50 colonies bees; young grove, good land, garden, and barn. Reason for wishing to lease, partial loss of the use of one hand. W. J. DRUMBRIGHT, Sarasota, Fla.

The Virginia climate is ideal for farming, fruit-growing, and stock-raising. Abundant rainfall, fertile soil. Good farm lands on railroad, \$15 an acre, easy payments. Write for authentic information. F. H. LABAUME, Ag'l Agt. Norfolk & Western Ry., Room 246, N. & W. Bldg., Roanoke, Va.

Men of ambition prosper in the Southeast. Small capital with energy will accomplish wonderful results. Dairy, stock, fruit, or poultry will make you independent. Land sells from \$15 an acre up. Growing season from 7 to 10 months' duration. Modern schools, good highways and churches. "The Southern Field" Magazine and farm lists on request. M. V. RICHARDS, Land and Industrial Agent, Room 27, Southern Railway, Washington, D. C.

FOR SALE.—120 acres of good land right where the clover, raspberry, and basswood grow, and 240 colonies of good bees, and all of the extra fixtures for running three apiaries for extracted honey. Will sell cheap. Write for price.

E. S. FROST, Rt. 3, St. Louis, Mich.

FOR SALE.—About one acre land with fruit-trees bearing; also berries; four-room frame house, with bath, furniture, carpets, and linoleum; two small tenant houses, renting for \$9.00 per month (the two); also two-story barn, 16 x 20; hen-house, 100 Brown Leghorn hens, 20 stands of bees in L. hives; 20 supers of L. combs; two-frame Cowan extractor; good location for bees; could increase number greatly. Located $\frac{1}{2}$ mile from Glenwood Springs, Colo., the great hot-spring health resort. Terms if desired. Price \$2000. K. M. BARBOUR, Glenwood Springs, Colo.

BEES AND QUEENS

Phelps' Golden Italian Queens will please you. C. W. PHLEPS & SON, 3 Wilcox St., Binghamton, N.Y.

Two-frame nuclei, with Italian queen, \$2.75; bees by the pound, \$1.25. J. B. MARSHALL, Big Bend, La.

Pure Italian bees or their hybrids, in L. 10 frames, wired, full foundation, 1 or 100. JOS. WALRATH, Antioch, Cal.

Connecticut queens, 3-banded Italians only; large and vigorous; ready May 15. Price list. W. K. ROCKWELL, Bloomfield, Ct.

Golden Italian queens, about May 1. Tested, \$1.00; select, \$1.25; untested, 70 cts. each; dozen, \$8.00. D. T. GASTER, Rt. 2, Randileman, N. C.

Golden-yellow Italian queens my specialty. Untested, \$1.00; tested, \$1.50. Ready April 1. Safe arrival guaranteed. E. A. SIMMONS, Greenville, Ala.

Leather-colored Italian queens June 15. Circular free. No foul brood. 1, 85 cts.; 6 for \$4.50; dozen, \$8.00. D. G. LITTLE, Hartley, Iowa.

Three-frame nucleus for sale with queen, \$2.50; 3 or more, \$2.25, on Langstroth frames; commence to ship about May 15. W. H. STANLEY, Dixon, Ill.

Phelps' Golden Italian Bees are hustlers. C. W. PHLEPS & SON, 3 Wilcox St., Binghamton, N. Y.

FOR SALE.—200 colonies of Italian bees at \$5.00 per colony. G. H. ADAMS, Spring and Central Ave., Troy, N. Y.

FOR SALE.—40 colonies Italian bees in 8-frame hives, \$200. Will not sell less than whole lot. S. V. REEVES, Haddonfield, N. J.

Three-band Italian queens. Tested, \$1.00; untested, 75 cts.; ready May 15. S. CLICK, Mt. Jackson, Va.

FOR SALE.—15 colonies of Italian bees, Danz. hives, full sheets foundation, and wired combs, \$5.00 per colony. L. P. MORRIS, Elizabethtown, Ind.

My queens are bred from imported mother. For gentleness and honey-gathering they are unexcelled. Untested, 1, 75 cts.; 6, \$4.25; 12, \$8.00. Safe arrival. Address W. J. FOREHAND, Ft. Deposit, Ala.

Italian bees in pound packages and on comb our specialty; 30-page catalog giving beginner's outfit free; also queen.

THE DERON TAYLOR CO., Lyons, N. Y.

Italian bees, Moore's stock, with tested queens, in ten-frame dovetailed hives, \$6.50 per colony; warranted free from disease.

N. P. ANDERSON, Eden Prairie, Minn.

FOR SALE.—Four stands bees, 4 Root hives complete, good as new. Make me offer for all. M. E. FERRELL, 3542 10th St., N. W., Washington, D. C.

FOR SALE—100 colonies of bees in double-walled hives at \$5.50 per colony. Write for Peerless double-walled hive circular.

L. F. HOWDEN MFG. CO., Fillmore, N. Y.

California Golden three-banded queens equal the best. Drop us a line. Mated, 75 cts.; 12, \$8; 50, \$32; 100, \$60; tested, \$1.25 to \$2.50. W. A. BARSTOW & Co., San Jose, Cal.

1914 QUEENS.—Moore's strain of leather-colored Italians in April at 75 cts. Also bees by the pound, nuclei, tested queens. Write for prices on nuclei. Address OGDEN BEE AND HONEY CO., Ogden, Utah.

FOR SALE.—50 full colonies pure Italian bees in eight-frame dovetailed hives with Hoffman frames at \$6.00 each. All queens last-year Moore. Hives in good condition, painted. No disease.

F. A. GRAY, Redwood Falls, Minn.

Queens and Bees for Sale.—See our large advertisement elsewhere in this journal, and read The A. I. Root Co. letter to us regarding our queens. Write at once for large bee and queen circular.

THE PENN CO., Penn, Miss.

Golden Italian queens that produce golden bees, the brightest kind, gentle, and as good honey-gatherers as can be found. Each, \$1.00; six, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.

J. B. BROCKWELL, Barnett's, Va.

Queens ready in May. J. E. Hand strain of three-band Italians, bred for gentleness, honey-gathering, wintering, and long life. Write for price list and free booklet, How to Transfer, Get Honey and Increase.

J. M. GINGERICH, Arthur, Ill.

Phelps' Golden Italian Queens combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; six, \$5.00; tested, \$3.00; breeders, \$5.00 and \$10.00. C. W. PHLEPS & SON, 3 Wilcox St., Binghamton, N. Y.

Golden and three-banded Italian and Carniolan queens ready to ship after April 1. Tested, \$1.00; 3 to 6, 95 cts. each; 6 to 12 or more, 90 cts. each. Untested, 75 cts. each; 3 to 6, 70 cts.; 6 or more, 65 cts. each. Bees, per lb., \$1.50; nuclei per frame, \$1.50. C. B. BANKSTON, Buffalo, Leon Co., Tex.

FOR SALE.—Several yards of bees on five years' time and easy terms of payment. No disease, and best of locations. All we ask is that you help us work these bees for several months this year to show your ability to manage them. Further particulars on request. SPENCER APIARIES CO., Nordhoff, Cal.

Dunn's Golden Italian queens, bred strictly for business, that produce a strong race of honey-gatherers. March 1 to Oct. 15: One, mated, 75 cts.; 6, \$4.25; 12, \$8.25; 50, \$32.50; 100, \$60.00. Tested, \$3.00; breeders, \$10.00. L. J. DUNN, Queen-breeder, Box 337G, Rt. 6, San Jose, Cal.

Try Forehand's three-band Italian queens. They are raised from imported stock, unexcelled for honey and gentleness. One untested, 75 cts.; 6, \$4.25; 12, \$8.00. Send me your order; and if not satisfied I will return money. Safe arrival.

N. FOREHAND, Rt. 2, Brewton, Ala.

We requeen our bees every year with best Italian stock to prevent swarming. We offer the one-year-old queens removed from these hives at 50 cts. each; \$5.40 per doz.; \$40 per 100. Delivery guaranteed. Book orders now. Nuclei, any quantity, 2 frames, \$1.50; 3 frames, \$2.00. Add price of above queens wanted. SPENCER APIARIES CO., Nordhoff, Cal.

FOR SALE.—Swarms of bees in packages. Replace your winter losses and strengthen weak colonies with young, healthy Italian bees: $\frac{1}{2}$ -lb. packages, 90 cts. each; 1-lb. packages, \$1.25 each; 2-lb. packages, \$2.45 each. Young, untested, three-banded Italian queens, 75 cts. each. We guarantee satisfaction and safe arrival. Write for circular and complete price list.

BROWN & BERRY, Hayneville, Ala.

I will sell and ship some bees from my 400 colonies from northern Louisiana in April and May. Two-comb nuclei, \$2.00; 3-comb, \$2.50. One pound bees in Root cages, \$1.50; two pounds, \$2.50. Queens with bees, 75 cts. extra; young untested, or last season's tested, ordered separate, \$1.00 each

H. C. AELERS, West Bend, Wis.

Queens bred from Moore's and Doolittle's best Italian stock; untested, 60 cts. each; \$6.60 per dozen; \$50.00 per 100. Tested, 90 cts. each, \$10.20 per dozen; \$80.00 per 100. Delivery guaranteed. Book orders now. Nuclei, any quantity, two-frame, \$1.50; three-frame, \$2.00. Add price of above queens wanted. SPENCER APIARIES CO., Nordhoff, Cal.

Goldens and three-band Italians, ready March 1. They have been bred for three points—prolificness, gentleness, and honey-gathering qualities. Select untested, each, 75 cts.; 6, \$4.25; 12, \$8.25; 50, \$32.50; 100, \$60.00. Tested, \$1.50; select tested, \$2.00; three-banded breeders, \$4.00; golden breeders, \$5.00.

GARDEN CITY APIARY CO.,
Rt. 3, Box 86, San Jose, Cal.

FOR SALE.—California Italian queens, Goldens and Three-handers by return mail after March 15; select untested, 75 cts.; 12, \$8.00; tested, \$1.00; breeders, \$3.00. Bees by the pound a specialty, ready April 1; 1 lb., \$1.25; 2 lbs., \$2.25; large lots, less. Booking orders now. Deliveries and satisfaction guaranteed. Correspondence solicited. Circular free J. E. WING, 155 Schield Ave., San Jose, Cal.

GOOD QUEENS.—Good queens are a real necessity in any apiary if best results are to be expected. The old leather-colored three-band Italians have proven themselves to be the best general-purpose bee extant. These I can supply in any quantity you may wish. Untested \$1.00 each; \$4.25 for six; \$8.00 per dozen. Safe arrival and satisfaction. All orders will have prompt attention. E. J. ATCHLEY, Bloomington, Cal.

FOR SALE.—Early swarms at fall prices; $\frac{1}{2}$ -lb. bees, \$1.00; 1 lb. bees, \$1.50. Add price of queen if wanted. Untested three-band Italian queen, 75 cts. each; tested Italian queens, \$1.25 each. These are bred from best honey-gathering strain. No disease. Safe arrival and satisfaction guaranteed. This is undoubtedly the best way for Northern honey producers to increase and improve their stock. Delivery begins about April 5. Capacity, 40 swarms per day.

W. D. ACHORD, Fitzpatrick, Ala.

Many men of many minds; but the minds of practical beekeepers are turned toward the old reliable three-band Italians. We have them in their purity, new blood, new importation. Untested queens from March to June, \$1.00 each; \$4.25 for six, or \$8.00 per dozen; safe arrival and satisfaction to all customers. Write for prices on large quantities. You do not have to return dead queens to us—just state it so on a postal card, and queens dead on arrival will be replaced promptly.

THE GOLDEN RULE BEE CO., Riverside, Cal.

EARLY QUEENS.—Those who desire early queens can be supplied by sending orders to us. Only three-band Italians stand the severe test against diseases, and our bees are clean. Untested queens, \$1.00 each; \$4.25 for six; \$8.00 per dozen. Always safe arrival and satisfaction to everybody. If you desire queens in large lots early, better let us book you as soon as convenient, and money can be sent when queens are wanted. Your check is good, or any way you wish to remit.

THE RIALTO HONEY CO., Box 73, Rialto, Cal.

Three-banded Italian queens: Before July 1, untested, 1, \$1.00; 6, \$5.00; 12, \$9.00; select untested, \$1.25; 6, \$6.25; 12, \$11.00. After July 1, untested, 1, 75 cts.; 6, \$4.00; 12, \$7.00; select untested, 1, \$1.00; 6, \$5.00; 12, \$8.50. One-frame nucleus, 75 cts.; two-frame, \$1.50; three-frame, \$2.25. To each nucleus add price of queen. Our queens are reared in a locality where there has never been disease, and reared from strong vigorous colonies. The apiary is under most competent supervision. Safe arrival and satisfaction guaranteed.

HORNER QUEEN & BEE CO., Ltd., Youngsville, Pa.

POULTRY

Buckeye Incubators, Kant Krowd Hoover, let me tell you about them. E. O. WALTZ, Medina, Ohio.

FOR SALE.—12 Rouen ducks or 15 R. C. W. Leghorn eggs, \$1.00. IRL. SPEAR, Marquette, Mich.

S. C. W. Leghorns, eggs for hatching, \$1.50 per 15, postpaid. E. B. FAY, Alexandria, Minn.

Eggs for hatching. S. C. White Orpingtons. Matting list free. JAMES R. LAMPSON, Box B, Medina, O.

Buff Wyandotte eggs from heavy laying strain, \$2.00 per setting. M. D. CHESBRO, Greenville, N. Y.

S. C. W. Leghorn eggs, bred to weigh and lay, \$1.00 for 15. PAUL FUNK, Warsaw, Ohio.

Stock and eggs for sale, all leading varieties; also geese and Belgian hares. Catalog free. LEVI STUMB, Richland Center, Pa.

Barred Rock eggs, \$2.00 for 15, from high-class exhibition stock, both matings. ALPLAUS BEE AND POULTRY FARM, Schenectady, N. Y.

Pure-bred Indian Runner ducks, snow-white eggs, 15 for \$1.00; 100 for \$6.00. J. C. WHEELER, 921 Austin Boule, Oak Park, Ill.

Pure white and fawn and white Indian Runners, Pekins. Catalog free. White-egg strains. THE DEBROY TAYLOR CO., Lyons, N. Y.

LEGHORNS.—Eggs for hatching. S. C. W. Leghorns, \$5.00 per 100; \$1.00 per 15. Send for catalog. WOODWORTH FARM, Wilton, Ct.

Eggs.—20 for \$1.00; leading varieties prize-producing, pigeons, hares, etc. Booklet free. Large illustrated catalog, 10 cts. F. G. WILE, Telford, Pa.

Sicilian Buttercups. One Utility flock. Eggs \$2.50 per 15; unsatisfactory hatches replaced at half price. WALTER M. ADEMA, Berlin, Mich.

White Hackle strain Silver Campines; eggs for hatching, \$3 per 15; \$6 per 30. Write for circular. ELMER W. PALMER, Catskill, N. Y.

FOR SALE.—Sicilian Buttercup eggs for hatching, \$2.00 per 15 eggs. L. S. GRIGGS, 711 Avon St., Flint, Mich.

S. C. White Minorcas, \$8 per 15; R. C. Buff Leghorns, S. C. Brown Leghorns, and Partridge Wyandottes, \$1 per 15. HILLCREST FARMS, Winchester, Ind.

Corning strain direct, S. C. W. Leghorn eggs and day-old chicks for sale. The strain that weigh, lay, and pay. Also B. P. Rocks at farmers' prices. F. J. ARMSTRONG, Nevada, Ohio.

Runner Duck Eggs.—Fawn, white-egg strain, \$1 per 12 eggs. Single-comb R. I. Red eggs, and day-old chicks. Tompkins strain. SARAH WIDRIG, Rt. 29, Burt, N. Y.

Royal Blue Orpingtons, Nicholson strain. Blue Andalusians; also pure-white Indian Runner ducks, blue-ribbon winners. Eggs for sale. Write me for special prices and description. H. R. ROHR, Buckhannon, W. Va.

MISCELLANEOUS

FOR SALE.—Dahlia roots, 2 cts. each and up—green flowering, and 100 other colors. Soy beans, Thornless raspberry. Circular free. JACOB MCQUEEN, Baltic, Ohio.

Dashen seed, \$4.00 per bushel, f. o. b. Tampa. Ten pounds, prepaid, \$1.00, to second zone of parcel post only; beyond that zone, send 80 cts. plus postage for ten pounds. THOS. PORTEUS & SONS, Rt. 3, Box 126, Ybor City Station, Tampa, Fla.

HELP WANTED

WANTED.—Young man of good habits to work with bees at once. State wages, age, and experience in first letter. M. C. SILSBEE, Rt. 3, Cohocton, N.Y.

WANTED.—Reliable man of good habits to work with bees the coming season. State age, experience, and wages first letter.

THE ROCKY MOUNTAIN BEE CO., Forsyth, Mont.

WANTED.—Man (married preferred) experienced in queen-raising; employment by the year on a salary and percentage.

OGDEN BEE AND HONEY CO., Ogden, Utah.

I want a good man to work with bees this season of about 3 1/2 or 4 months, beginning May 1: wages \$60 per month; must be a queen-raiser also. A. J. SPURLIN, Rt. 6, Box 124, Bakersfield, Cal.

WANTED.—Man and wife—man to help with bees, and woman to cook and do housework for man, boy, and me; 350 hives run for comb honey. State wages wanted. HENRY HASTINGS, Kenton, Ohio.

WANTED.—A young man, with some experience, for season of 1914, to work in our honey-producing yards and queen-rearing department. Must be strictly temperate, industrious, and willing to work hard in the busy season. State age, experience, and wages expected, with board supplied, in first letter. Give reference.

THE LATSHAW HONEY CO., Carlisle, Ind.

BEEKEEPERS' DIRECTORY

If you need queens by return mail send to J. W. K. SHAW & CO., Loreauville, Iberia Parish, La.

Nutmeg Italian queens, leather color, after June 1, \$1.00 by return mail. A. W. YATES, Hartford, Ct.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York.

QUEENS.—Improved red-clover Italians bred for business, June 1 to Nov. 15, untested queens, 75c. each; dozen, \$8.00; select, \$1.00 each; dozen, \$10; tested queens, \$1.25 each; dozen, \$12.00. Safe arrival and satisfaction guaranteed.

H. C. CLERMONS, Boyd, Ky.

Quirin's famous improved Italian queens, nuclei, colonies, and bees by the pound, ready in May. Our stock is northern-bred and hardy; five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices, send for circular.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

Convention Notices

The program for Canadian national field-day meet, to be held at the apiary of Mr. H. G. Sibbald, Forks of the Credit, Ont., is about completed.

Strong and representative committees have been appointed, and the enthusiastic reception given the movement has convinced those in charge that this event will be without a parallel in Canada, if not in the British Empire.

Almost without exception local associations have co-operated, and are sending large delegations. From as far away as British Columbia on the west and the maritime Provinces on the east have come greetings and wishes of success, while Nova Scotia will have an official on the grounds to see and report the meet.

The day will be celebrated, as last year, by basket picnics, and by practical demonstrations in the apiary. Wearisome lectures have been eliminated, and every-day methods will be used instead.

A large committee of ladies from the Peel and Halton, York, and the Toronto associations, will have charge of the basket-lunch counter, while at all the stations from Toronto to the Forks there will be a member of the committee on hand to inform and direct members and friends.

The railroad is placing special coaches on for the beekeepers. In every way possible the event is being studied by those in charge, so that when the 25th of May dawns the arrangements will be perfect, and the beekeepers from all over the country will find every thought anticipated.

The train will leave Toronto at 7:20 A. M., arriving at the Forks at 10:20, and leave the Forks at 6:30 P. M., arriving in the city at 9:30.

It remains for the rank and file to make this the largest and best field-day ever held on earth. Let there be no drones. Come one, come all, and bring your baskets.

CHARLES E. HOPPEK, Sec.
Toronto, Ont., March 21.

The twenty-third annual meeting of the Connecticut Beekeepers' Association will be held in the old Senate Chamber, State Capitol, Hartford, Ct., Saturday, April 18, 1914. Sessions 10:30 A. M. and 1:30 P. M. Election of officers and appointment of committees. Dr. Herbert E. Stockwell, of Stockbridge, Mass., ex-president of The Berkshire County Beekeepers' Association, will address us upon the subject, "The Theory and Significance of Immunity, i.e., of Resistance to Disease, as Applied to Bees." Dr. Stockwell comes to us well recommended as a fluent and forceful speaker, and we hope every member will make a special effort to hear him. Other features of the program are: How to save money in buying hives and fixtures. "Every man his own inspector, latest methods of treatment," with demonstrations by Inspector Yates. Inspector Coley will open discussion upon the subject. "Management of a comb-honey apiary to prevent swarming," by L. C. LeMay. Discussion, "Smoke Introduction of Queens," to be opened by Rev. D. D. Marsh. "Advantages of a Let-alone Hive, and how to Manage." Demonstration by Allen Latham. "Comparative merits of eight-frame and ten-frame hives for comb honey in locality of Connecticut." A. W. Coley. Please bring for display and demonstration any invention, implement, or method you may have. Space and tables will be provided for the same. A special invitation is extended to fruit-growers to attend. The question-box will be free to all.

L. WAYNE ADAMS, Sec.
15 Warner St., Hartford, Ct.

SPECIAL NOTICES BY OUR BUSINESS MANAGER

SWEET-CLOVER SEED.

Since we last reported we have received a shipment of choice hulled white seed from Nevada, and two lots of unhulled white—one from Virginia, the other from Ohio—both good seed. We report no change in prices from the last quoted.

BEESWAX WANTED.

It takes a lot of beeswax to keep our wax-room supplied these days. We will pay as much as you can get for it anywhere else, and we ask you to send forward any lots which you may have accumulated. See advertisement on another page.

SEED BUCKWHEAT.

We should like to hear from any of our readers who have for sale either Japanese or silverhull buckwheat seed. Submit a sample, and name the price per 100 pounds which you are asking for it. It is still early for buckwheat, but our stock of seed is limited, and we desire to get in touch with a further supply before the season for it is here.

SPECIAL NOTICES

A. I. Root

CASSAVA CUTTINGS.

Since our article in regard to the value of cassava for pigs and chickens, there have been requests to know where the cuttings can be procured. By the way of answer we give below an advertisement clipped from the *Florida Grower* of March 14. The price is surely low enough, and, without doubt, small lots could be sent by parcel post.

Cassava Cuttings—\$2 per 1000, f. o. b. R. Addison, Loughman, Fla.

ORDER OF THE POSTMASTER-GENERAL; RATES OF POSTAGE ON SEEDS, ETC.

Office of the Postmaster General,
Washington, March 13, 1914.

Order No. 7880.

Section 457, Postal Laws and Regulations, edition of 1913, is amended to read as follows:

1. Seeds, cuttings, bulbs, roots, scions, and plants, shall hereafter be embraced in and carried as fourth-class matter, and for the same rates of postage. (Act of March 9, 1914.)

2. The rate of postage on parcels of seeds, cuttings, bulbs, roots, scions, and plants, weighing four ounces or less, is one cent for each ounce or fraction thereof, regardless of distance; on parcels weighing more than four ounces the pound rates shown in paragraph 1, Section 456, apply. These rates apply whether the articles are for planting or other purposes.

See Section 469 as to preparation of seeds, etc., for mailing.

A. S. BURLESON, Postmaster-General.

ELECTRO-GALVANIC FINGER-RINGS; A COMPANION TO ELECTROPOISE.

Mr. A. J. Root:—I inclose a clipping from the San Antonio *Express*. What is your opinion of those electro-galvanic rings? If you see fit, give us your opinion in GLEANINGS.

Fort McKavett, Texas, Jan. 14. J. A. RUFF.

Afflicted people, take notice.—Most important discovery of modern times. Electro-galvanic rings. A drugless and harmless remedy. Guaranteed for rheumatism, neuralgia, aches, pains, indigestion, female troubles, eczema, nervousness, stomach, bowel, kidney trouble. Composed of electro positive and negative metals. When worn on the finger, produces a mild current of electricity through the body, which purifies the blood, strengthens the nerves and muscles, induces sweet, refreshing sleep, improves the appetite, and expels disease from the body. Write for full particulars explaining the manner in which nitrogen and oxygen are produced from copper and zinc, and converted into electricity. How electricity and carbon gases affect the human system, one to perpetuate, the other to destroy and decay, accounting for the presence of life and death in the body.

Did you ever? Mrs. Root says not one in 10,000 would ever be taken in by such "guff;" but I do not feel so sure about it. Our older readers will recall we have several times, in years past, shown up these "rings."

▲ "KIND WORD" AND SOMETHING ELSE.

Dear Friend:—Knowing of your great interest in the cause of temperance I take pleasure in mailing to you a copy of the *Temperance Instructor*. This magazine so thoroughly exposes the liquor-traffic in every phase of its work that it can not fail to win thousands away from its support, bondage, and destruction. Now, I trust you will help us to place this little magazine in the homes of the people. Liberal discounts given if ordered in quantities. Write the publishers for terms.

We have been subscribers to GLEANINGS for several years, and greatly enjoy Our Homes; and the author, as addressed above, seems like a "dear old friend," and, together with that "dear good wife," we wish for them the richest of God's blessings.

Cuttingsville, Vt., Feb. 22. Mrs. C. E. LEWIS.

[The beautiful finely illustrated magazine mentioned above is the finest thing altogether I have ever got hold of on the subject of temperance. Every child will doubtless look it through, and quite likely read it through. I wonder the Anti-saloon League and the W. O. T. U. have not called attention to it. As I take it, this is a special temperance issue of the *Youth's Instructor*. The price of this one number is 10 cts., and much less by the hundred copies. It seems the *Youth's Instructor* has been published *sixty* years; but all I can find in this issue regarding terms, etc., is as follows: *The Youth's Instructor*, issued Tuesdays by the Review and Herald Publishing Association, Takoma Park Station, Washington, D. C. Fannie Dickerson Chase, Editor.]

Honey-Cans

We have made especial efforts this season to supply our patrons with cans and cases of the finest quality, and we have now in our warehouse a complete stock ready for immediate shipment to you.

There is much satisfaction in knowing that there is a dependable source of supply so near to all Texas Beekeepers, and others in the great Southwest. Experience has taught us to anticipate properly the needs of our patrons, and we have as yet failed to fall down at a critical time. Sometimes we feel that it is not wise for Beekeepers to trust entirely to the supply house for eleventh-hour assistance, but we concentrate our energies, nevertheless, on complete preparation, and when you are ready we are. Write us for prices.

Weed's New Process Comb Foundation

We have made extensive improvements in our comb-foundation factory this season at a great expense, and are now operating day and night under the supervision of a man direct from the A. I. Root Company, who has had many years of experience in the manufacture of this product. When placing your order with us you are assured of receiving Comb Foundation of unexcelled quality.

A full line of Root's Beekeepers' Supplies on hand at all times ready for immediate shipment.

Toepperwein & Mayfield

Nolan and Cherry Sts. San Antonio, Texas

POLLYANNA THE GLAD BOOK

By ELEANOR H. PORTER, author of "Miss Billy" and "Miss Billy's Decision;" illustrated, cloth-bound, \$1.40 postpaid.

"Enter Pollyanna. She is the most irresistible maid you have met in all your journeyings through Bookland. She is so real that you forget that she is a story girl. After the first introduction you will feel that the inner circle of your friends has admitted a new member. A brave, winsome, modern American girl, Pollyanna walks into print to take her place in the hearts of all members of the family."

Twelfth Printing

Read some of the press comments:

"Pollyanna is the 'gladdest' book that was ever written. It is of more real value than any thousand sermons to which I have ever listened."—*Passaic Daily News*.

"It is a book that charms at once by its style, and delights by its character-drawing and the interest developed by the story."—*The Boston Journal*.

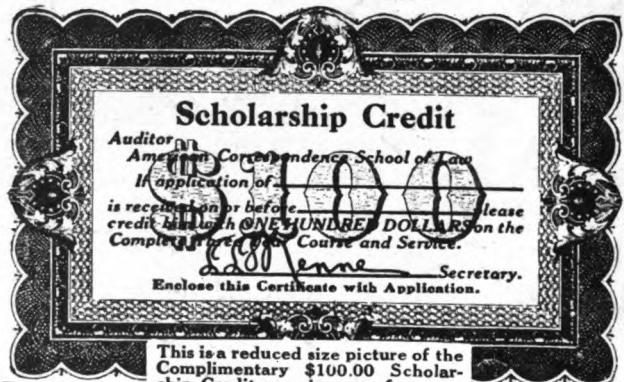
"Pollyanna is a delightful character, and the book refreshingly natural."—*Cedar Rupsids Record*.

A Copy of Pollyanna as Premium

Send us two new yearly subscriptions to GLEANINGS IN BEE CULTURE with remittance of \$2.00, or your own renewal for one year, and a new subscription for one year with remittance of \$2.00, and we will send you postpaid as premium a copy of "Pollyanna."

The A. I. Root Co., Medina, Ohio

Canadian postage 30c extra per year; Foreign postage 60c extra per year.



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Gleanings *in* Bee Culture



VOL. XLII., APR. 15, 1914, NO. 8.
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ANSWERS TO 150 QUESTIONS

**By the Editor of
GLEANINGS IN BEE CULTURE**

The first fifty or sixty questions are those commonly asked by beginners. The remainder are queries that naturally arise in the minds of more experienced beekeepers. The last hundred questions have been asked by GLEANINGS subscribers, and are put in permanent form in this way because they cover those points which so often perplex beekeepers.

The index enables one to find at once answers which will help him to solve many of the puzzles connected with the care of bees.

The five questions given below have been taken at random from the book.

How can I tell a queen-cell from all the rest?

What is the best way to introduce a valuable queen?

What must be planted for bees to work upon?

I have an engagement to give a live-bee exhibit at our county fair this fall. This will be my first experience. Is it advisable to feed the bees while they are confined?

In comparison, all points considered, for comb honey, what advantage if any has the $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{1}{8}$ over the $4 \times 5 \times 1\frac{3}{8}$ section?

Send for the book as premium when you renew your subscription to GLEANINGS, and read the answers to these questions and the other 145.

A copy of "Answers to 150 Questions" and "Gleanings in Bee Culture" one year Both for \$1.00

Canadian postage, 30 cts. extra; Foreign postage, 60 cts. extra.

The A. I. Root Co., Medina, Ohio

SEASONABLE SUGGESTIONS "falcon" Bee Supplies

HIVES—What better chance have you to get your "falcon" hives nailed than just now? Now's the time to place your order for some "falcon" hives. Make use of your spare time by nailing your hives and frames.

SECTIONS—Sections ordered at this time can be folded before the season begins, and you are that much more ahead, which means money in your pocket.

FOUNDATION—This is an excellent time to order foundation and to put it into sections and frames, now when you have the spare time, thus preparing you to go into the season with a good start. Here's what Mr. J. J. Wilder, Cordele, Ga., says about our foundation: "Your foundation is the best I ever bought, and I am more than pleased with it." Mr. Wilder is one of the largest beekeepers in the country.

SUPERS—Supers can be nailed and painted, and filled with sections and starters, by ordering your requirements now. You can not afford to be without supers when the rush comes. Get your order in for "falcon" supers now before the swarming season begins.

Send for our foundation samples and new Red Catalog, postpaid.

Dealers Everywhere: New England States, Ross Bros. Co., 30 Front Street, Worcester, Mass.
Central States, The Fred W. Muth Co., 204 Walnut St., Cincinnati, Ohio.
Western States, C. C. Clemons Bee Supply Co., 128 Grand Ave., Kansas City, Mo.
Southern States, J. J. Wilder, Cordele, Ga., and many others here and abroad.

W. T. Falconer Manufacturing Company, Falconer, New York

Where the good beehives come from

"ROOT" "PEIRCE" "ZANESVILLE"

Three words that unlock the possibilities of successful beekeeping.

"ROOT QUALITY" has always represented the acme of perfection in every thing pertaining to bees.

"PEIRCE SERVICE" is fast becoming a synonym for promptness coupled with courtesy and fairness.

ZANESVILLE—the metropolis of eastern and southern Ohio—is the logical distributing-point for the beekeepers of Ohio, West Virginia, and western Pennsylvania; and those more remote can be served with a large degree of satisfaction on account of the superior shipping facilities of this city.

Our 1914 Catalog of Beekeepers' Supplies and Introduction to Beekeeping is now being sent to those on our mailing-list. If you have not already received or do not receive it soon, a postal-card request will insure your receiving it without delay.

Prospects for the coming season are unusually bright, and both prudence and economy would suggest the early placing of your order.

E. W. Peirce, Zanesville, O.

Airdome Bldg., South Sixth St.

It turns over an important "new leaf" beginning with the January number.

The Guide to Nature Several New Features

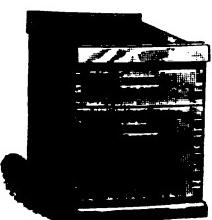
"Birds in the Bush," a department edited by Edmund J. Sawyer, with illustrations from original drawings by this talented artist-ornithologist.

"The Fun of Seeing Things," a department for young folks, edited by Edward F. Bigelow, succeeding his well-known work as editor of the "Nature and Science" department of "St. Nicholas" for more than fourteen years.

This new department will be really new. It will not be "schooly," not "nature study," not to induce parents and educators to say, "It is good for the children," but it will appeal directly to the young folks themselves and will help them to enjoy the natural objects that surround them. It will be true to its name.

Subscription \$1.00 a year; single copy 10c.
To new subscribers, four months trial for 25c. Address (and make check or money order payable to)

**The Agassiz Association,
ARCADIA:
Sound Beach, Connecticut**



EARLY-ORDER DISCOUNTS WILL Pay You to Buy Boo Supplios Now

39 years' experience in making everything for the beekeeper. A large factory specially equipped for the purpose ensures goods of highest quality. . . . Write for our illustrated catalog and discounts today.

LEAHY MFG. CO., . 95 Sixth St., . Higginsville, Missouri

HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

NATIONAL BEEKEEPERS' ASSOCIATION GRADING RULES

Adopted at Cincinnati, Feb. 13, 1913.

Sections of comb honey are to be graded: First, as to finish; second, as to color of honey; and third, as to weight. The sections of honey in any given case are to be so nearly alike in these three respects that any section shall be representative of the contents of the case.

I. FINISH.

1. *Extra Fancy*.—Sections to be evenly filled, comb firmly attached to the four sides, the sections to be free from propolis or other pronounced stain, combs and cappings white, and not more than six unsealed cells on either side.

2. *Fancy*.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white, and not more than six unsealed cells on either side exclusive of the outside row.

3. *No. 1*.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white to slightly off color, and not more than 40 unsealed cells, exclusive of the outside row.

4. *No. 2*.—Comb not projecting beyond the box, attached to the sides not less than two-thirds of the way around, and not more than 60 unsealed cells exclusive of the row adjacent to the box.

II. COLOR.

On the basis of color of the honey, comb honey is to be classified as: first, white; second, light amber; third, amber; and fourth, dark.

III. WEIGHT.

1. *Heavy*.—No section designated as heavy to weigh less than fourteen ounces.

2. *Medium*.—No section designated as medium to weigh less than twelve ounces.

3. *Light*.—No section designated as light to weigh less than ten ounces.

In describing honey, three words or symbols are to be used, the first being descriptive of the finish, the second of color, and the third of weight. As for example: Fancy, white, heavy (F.W.H); No. 1, amber, medium (1-A-M), etc. In this way any of the possible combinations of finish, color, and weight can be briefly described.

**JUST
OUT!**

New 1914 Catalog--"Everything for Bees"

Lay your plans for the new season now. Send for the 1914 Muth Catalog of Beekeepers' Supplies. It's just off the press. In it you will find full information about the remarkable MUTH SPECIAL Dovetailed Hives. Drop a postal card at once—sure!

THE FRED W. MUTH CO.

204 WALNUT STREET

"The Busy Bee Men"

CINCINNATI, OHIO

P. S.—Ship us your old combs and cappings and let us render them for you. Our process extracts the last drop of wax from the slumgum. This means money for you. Write for full particulars.

CULL HONEY.

Cull honey shall consist of the following: Honey packed in soiled second-hand cases or that in badly stained or propolized sections; sections containing pollen, honey-dew honey, honey showing signs of granulation, poorly ripened, sour or "weeping" honey; sections with comb projecting beyond the box or well attached to the box less than two-thirds the distance around its inner surface; sections with more than 60 unsealed cells, exclusive of the row adjacent to the box; leaking, injured, or patched-up sections; sections weighing less than ten ounces.

HONEY-GRADING RULES ADOPTED BY THE COLORADO STATE BEEKEEPERS' ASSOCIATION,
DECEMBER 18, 1911.

FANCY WHITE.—Sections to be well filled, comb firmly attached to all sides and evenly capped except the outside row next to the wood. Honey, combs, and cappings white, and not projecting beyond the wood; wood to be well cleaned; no sections in this grade to weigh less than 18½ ounces.

NO. 1.—Sections to be well filled, combs firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey white or very slightly off color. Combs not projecting beyond the wood; wood to be well cleaned; no section in this grade to weigh less than 18½ ounces.

CHOICE.—Sections to be well filled; combs firmly attached; not projecting beyond the wood, and entirely capped, except the outside row next to the wood. Honey, comb, and cappings from white to amber, but not dark; wood to be well cleaned; no section in this grade to weigh less than 12 ounces.

NO. 2.—This grade is composed of sections that are entirely capped, except row next to wood, weighing from ten to twelve ounces or more, also of such sections that weigh 12 ounces or more, and have not more than 50 uncapped cells all together, which must be filled. Combs and cappings from white to amber in color, but not dark; wood to be well cleaned.

EXTRACTED HONEY.—Must be thoroughly ripened, weigh 12 pounds per gallon. It must be well strained, and packed in new cans. It is classed as white, light amber, and amber.

STRAINED HONEY.—This is honey obtained from combs by all other means except the centrifugal extractors, and is classed as white, light amber, amber, and dark; it must be thoroughly ripened and well strained. It may be put up in cans that previously have contained honey.

BOSTON.—We quote fancy and No. 1 white comb honey at 15 to 16; fancy white extracted honey in 60-lb. cans, 11. Beeswax, 30.

Boston, April 4.

BLAKE-LEE CO.

INDIANAPOLIS.—Fancy white comb is being offered here at 16 to 17 cents per pound; amber comb, 14 to 15; white-clover extracted, 9 to 10 in 5-gallon cans. Much comb honey is being held here; but at this writing there is very little demand. Extracted is in fair demand. Producers are being paid 32 cents cash for beeswax, or 34 in trade.

Indianapolis, April 3. WALTER S. PODUER.

Honey reports continued on page 5.

SPECIAL DELIVERY

During this month we shall double our usual efforts in points of delivery and service. We carry nothing but the Root make, which insures the best quality of every thing. We sell at factory prices, thereby insuring a uniform rate to every one. The saving on transportation charges from Cincinnati to points south of us will mean quite an item to beekeepers in this territory. We are so located that we can make immediate shipment of any order the day it is received.

New 64-page Catalog

Our new 1914 catalog contains double the pages of former editions and requires extra postage. It is filled from cover to cover with complete lists of goods in every line to meet every requirement of beekeepers. If you haven't received a copy when you read this, be sure to ask for one. It will save you money.

New Features for 1914

Few radical changes have been made this season. It should be noted, however, that we will send out with regular hives, unless otherwise ordered, the metal telescopic or R cover with super cover underneath. The side rail for the bottom-board will be extra length so as to overcome the difficulty experienced by some last season. Improvements have been made in extractors. We shall carry a very heavy stock so that orders may be filled with our usual promptness. Write us your needs.

C. H. W. Weber & Co.

2146 Central Avenue

Cincinnati, Ohio

Gleanings in Bee Culture

E. R. ROOT
Editor

A. I. ROOT
Editor Home Dept.

H. H. ROOT
Ass't Editor

J. T. CALVERT
Business Mgr.

Department Editors:—Dr. C. C. Miller, J. E. Crane, Louis H. Scholl, G. M. Doolittle, Wesley Foster, J. L. Byer, P. C. Chadwick.

\$1.00 per year. When paid in advance: 2 years, \$1.50; 3 years, \$2.00; 5 years, \$3.00.

POSTAGE IS PREPAID by the publishers for all subscriptions in the United States, Hawaiian Islands, Philippine Islands, Guam, Porto Rico, Tutuila, Samoa, Shanghai, Canal Zone, Cuba, and Mexico. Canadian postage is 30c per year. For all other countries in the Postal Union add 60c per year postage.

CHANGE OF ADDRESS. When a change of address is ordered, both the new and the old must be given. The notice should be sent two weeks before the change is to take effect.

DISCONTINUANCES. Notice is given just before expiration. Subscribers are urged, if unable to make payment at once after expiration, to notify us when they can do so. Any one wishing his subscription *discontinued* should so advise us upon receipt of the expiration notice; otherwise it will be assumed that he wishes GLEANINGS continued and will pay for it soon.

HOW TO REMIT. Remittances should be made by draft on New York, express-order or money-order, payable to the order of The A. I. Root Co., Medina, Ohio. Currency should be sent by registered letter.

AGENTS. Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

FOREIGN SUBSCRIPTION AGENTS.

Foreign subscribers can save time and annoyance by placing their orders for GLEANINGS with any of the following authorized agents at the prices shown:

PARIS, FRANCE. E. Bondonneau, 154 Avenue Emile Zola.

Per year, postpaid, 8 francs.

GOODNA, QUEENSLAND. H. L. Jones. Any Australian subscriber can order of Mr. Jones. *Per year, postpaid, 6 1/7 p.*

DUNEDIN, NEW ZEALAND. Alliance Box Co., 24 Castle St., *Per year, postpaid, 6 1/7 p.*

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LIVERPOOL.—The honey market is dull for Chilian, and sales only retail. For pile 1, \$6.72 to \$7.20 is quoted. Pile 2, \$6.72; pile 3, \$5.32 to \$5.76. We are without supplies of Chilian beeswax. The market is firm. Value \$41.04 per cwt., as to quality.

Liverpool, March 18. TAYLOR & Co.

ZANESVILLE.—We quote No. 1 to fancy white comb at 16½ to 18½ in a jobbing way; 18 to 20 wholesale. Best white extracted in 50-lb. cans, 9 to 10. These quotations are for white clover. Western honeys rule about a cent less. The market is quiet. Producers are receiving for beeswax 32 to 33 cents cash, 34 to 35 in exchange for bee supplies.

Zanesville, April 7. EDMUND W. PEIRCE

DENVER.—Our market is getting fairly well cleaned up on comb honey, and it looks as if it would be entirely used up before the new crop comes on. Our jobbing prices are as follows: Strictly No. 1 white, fancy stock, per case, \$2.52; choice, good color and heavy weight, per case, \$2.39; No. 2, well finished, fair color, per case, \$2.25.

THE COLORADO HONEY-PRODUCERS' ASSOCIATION,
Denver, April 7. F. RAUCHFUSS, Mgr.

ST. LOUIS.—We have nothing new to report in our honey market since our last letter. Comb honey has been moving very slowly lately and stocks here are still quite large. Amber extracted honey, for manufacturing purposes, has a good demand, and our market is almost bare of this quality. We are still quoting, in a jobbing way, Southern extracted honey in barrels at 6½ to 7; 5-gallon cans, 7 to 7½; dark, 7½ to 1 ct. less; comb honey, fancy clover, 15 to 16; light amber, 13 to 14; amber, 11 to 12; dark and inferior, less. By the case, fancy clover brings \$3.00 to \$3.25; light amber, \$2.50 to \$3.00; amber, \$2.00. Beeswax is very firm, and quoted at 34 for prime; impure and inferior, less.

R. HAETMANN PRODUCE CO.

St. Louis, April 4.

QUEEN-BEES TO ORDER.

Pompano will probably soon have more queens than any other village in the world, the queens to be of the bee variety. E. R. Root, son of A. I. Root, millionaire honey-producer and king of the bee business, after a week's sojourn in this part of the State, has practically decided upon establishing in Pompano a colony for raising queen-bees, and upon his return home will make definite arrangements. With Mr. Selser, an authority on chemistry or honey and beeswax, and several other men prominent in their industry, Mr. Root came to the Southern East Coast early last week, and made a close study of conditions along the coast and in the Everglades. Several conferences were held with O. O. Poppleton, the Florida bee gink.

The establishing of the queeneries at Pompano will mean several hundred more bee colonies, according to Mr. Poppleton, and this region will become famed for its honey as well as for its grapefruit, tomatoes, etc.—*Ft. Lauderdale Herald.*

How to Keep Bees

BY ANNA BOTSFORD COMSTOCK

This is an excellent book for the beginner. Nothing better. We cordially recommend it to all who are learning beekeeping by their own effort. Having commenced beekeeping three times, the talented author is in a position to furnish the right kind of advice. You can not go wrong in getting this book. It is charmingly written and easily understood. Price \$1.10 postpaid.

THE A. I. ROOT COMPANY, MEDINA, OHIO.

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They were on their honeymoon, and were staying at a big hotel. One night the man retired somewhat later than his spouse. Arriving at the door of what he imagined to be his room, and finding it locked, he tapped and called, "Honey!"

No answer came, and he called more loudly, "Honey!"

Still he got no reply, and, becoming uneasy, he repeated the endearing term with still more power. This time he was answered.

"Get out, you idiot!" came an indignant male voice from the other side of the door. "This is a bathroom, not a blooming beehive!"

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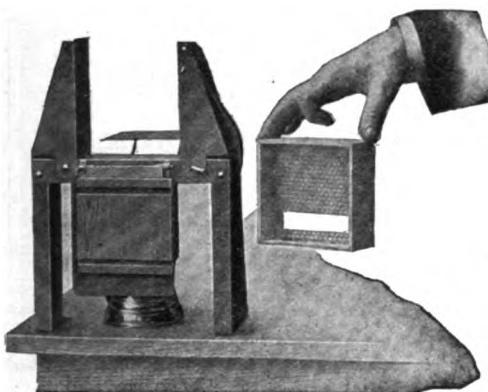
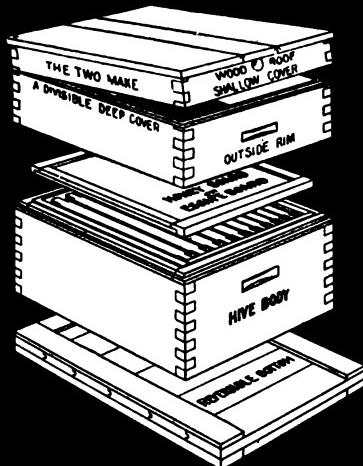
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Department 2

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and its application to Out-aparies is fully outlined in the new booklet "The Management of Out-aparies."

This is the new title of "A Year's Work in an Out-apary," written by G. M. Doolittle, of New York, and again revised this past season. The writer has incorporated all of the new ideas that he has successfully worked out this past season, and we are now able to offer you the best there is at this time on the subject of running a series of yards with the least amount of time and labor. If you haven't any thing on this subject you ought to have a copy of this fourth edition. . Price 50 cents postpaid.

Order now from the publishers.

The A. I. Root Co., Medina, O.

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Emile Bondonneau

Root's General Agent for Eastern Europe and Colonies
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If you will send us a list of goods needed we will be pleased to quote you on them. Catalog free.
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Apries, Glen Cove, L. I.

The BEEKEEPERS' REVIEW

Will begin publishing the proceedings of the NATIONAL Convention at St. Louis with the May number. What we have to offer our readers for the last eight months of 1914 is the very best thought of such noted persons as Dr. E. F. Phillips, Department of Agriculture, Washington, D. C.; Prof. F. W. L. Sladen, Experimental Farm, Ottawa, Canada; Prof. Morley Pettit, Ontario Provincial Apriarist; Mr. Wesley Foster, Associate Editor of the REVIEW; Mr. E. E. Burton, Falmouth, Ky.; Elmer G. Carr, Director N. B. K. A.; Mr. J. M. Buchanan, Franklin, Ky.; Director N. B. K. A.; Mr. Joseph J. Anderson, Idaho; Mr. E. S. Miller, Indiana; Prof. H. F. Wilson, Oregon Agricultural College; Mr. H. F. Hillenmeyer, Lexington, Ky.; Mr. J. E. Pleasants, California; Mr. Frank Pellett, Vice-president N. B. K. A., Iowa. President Gates left no "stone unturned" to secure a higher grade of program than heretofore, and the above array of notable speakers volumes for his efforts. Besides the above, many other "feature" articles will appear during the balance of the year. Mr. J. J. Wilder will tell the most interesting and valuable portion of his series of articles, "The management of 3000 colonies of bees in 50 years," during the remainder of the year. Then there is the "Pearce Method" now running in the REVIEW. The May number will tell how he manages to produce large crops of comb honey with only two visits each year. Then there are many other valuable articles that space forbids mentioning at this time that will appear during the next eight months. Every reader of Gleanings will be interested in this fine array of material that is about to be published in the REVIEW, and to make it very easy for every one to acquire it we are going to offer the balance of 1914, beginning with the May number, for only 50 cents. Any one of the above valuable contributions ought to be worth the 50 cents we are asking for the entire eight numbers. Be sure and get on the list while the supply is at hand. Address with remittance.

THE BEEKEEPERS' REVIEW, NORTHSTAR, MICHIGAN

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The Very Foundation
of Modern Beekeeping

Better let us send you a catalog of Root's, that you may be able to select the kind that will enable you to have a healthy and prosperous summer.

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Beeswax Worked into Foundation

If you want your wax worked into foundation we are prepared to do this for you at prices equal to those made by other standard manufacturers. Write for price if interested.

The A. I. Root Co., Medina, Ohio

"If goods are wanted quick, send to Pouder."

ESTABLISHED 1889

When You Think of Bee Supplies, Think of Pouder

A very complete stock of goods on hand, and new arrivals from factory with an occasional carload to keep my stock complete. Shipments are being made every day, and the number of early orders received is very encouraging. Numerous orders reached me during our February and March blizzards, which indicates that the beekeepers have confidence in the coming season.

My new catalogs have been distributed. If any of my friends have failed to receive theirs, please write for another. If more convenient you may make up your order from the Root Catalog---our prices being identical. For very large orders at one shipment, write for an estimate, and I can save you something by following the factory schedule.

I shall be glad to hear from my friends as to how bees are wintering and springing, and as to prospects for clover.

Walter S. Pouder

873 Mass. Ave., Indianapolis, Indiana

Indicate on a postal which of the catalogs named below you are interested in — They are Yours for the Asking.

CATALOG A.—BEE-SUPPLIES, listing every thing a beekeeper needs for his bees. Our goods are all "Root Quality," and we can save you time and freight expense in getting them. Let us furnish you with an estimate on your needs for the season.

CATALOG B.—BEES AND QUEENS. Mr. M. H. Hunt has charge of our queen-rearing apiary. We specialize in choice Italian queens, three-banded and golden, and bees by the pound. Orders filled in rotation as received.

CATALOG C.—BERRY SUPPLIES. We carry a full stock of standard quart baskets and 16-quart crates. **BEESWAX WANTED**.

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Beekeepers' Supplies

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"Griggs Saves You Freight"

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White-clover Extracted Honey Wanted, also Beeswax
in exchange for supplies. It will be to your interest to get in touch and keep in touch with us.

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Let us take you with us through the different operations and show you how Lewis Sections are really made.

First the material, which is the best Wisconsin white basswood that can be obtained, is bought by an experienced buyer by the carload—millions of feet of it. It arrives at the Lewis factory in the board, and is sorted as carefully as a woman picks over strawberries.

The best boards are then sent on their buzzing journey through the factory; fed through a planer watched over by a veteran in the business; sawed up into correct thicknesses and lengths and run through a polisher, the sandpaper polishing both ways of the grain.

Then the particular work commences. Here is where the intricate machinery gets the strips, rabbets them, scores them, dovetails them, and then the finished sections are packed away. But the secret is here: This delicate machinery is cared for like a trotting horse. The Lewis section foreman has been watching it, caring for it, keeping it right for the past thirty years.

He is Still on the Job Making Lewis Sections for you.

No matter what Hives, what Frames, what Supers, and what not you use,

Insist on Lewis Sections

Every crate going out with the Lewis name means something to you. Here is what one of our customers has just written us:

"We have been using the G. B. Lewis Company's No. 1 Sections for several years, and have a few of other makes, but find the Lewis goods the best. We have put up about 30,000 sections so far this season, and have not found one section in the lot that was not perfect. We find they fold perfectly, and hold together where some of the other makes come apart. We use the Rauchfus Combined Section-Press and Foundation-Fastener with Dadant's Foundation."

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Thirty Distributing Houses. . Send for the name of the one nearest to you.

HAVE YOU SEEN IT?

. . . THE . . .

NEW American Bee Journal

IT PLEASES

Before closing I wish to offer my congratulations on the splendid appearance and character of the *American Bee Journal* as it comes to us. No branch of agriculture, it would seem, is making more progress than that of bee-keeping, and the *Journal* is doing its share to foster that which is best in all departments.

Bridgeport, Wis., Aug. 4, 1913. HARRY LATHROP.

NEW Editor NEW Cover NEW Manager

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C. P. DADANT

DR. C. C. MILLER

American Bee Journal, Hamilton, Illinois

Gleanings in Bee Culture

Published by The A. I. Root Co., Medina, Ohio.

H. H. Root, Assistant Editor. E. R. Root, Editor. A. L. BOYDEN, Advertising Manager.
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Entered at the Postoffice, Medina, Ohio, as second-class matter.

VOL. XLII.

APRIL 15, 1914

NO. 7

EDITORIALS

Latest Reports from the Apalachicola Apiary.

HONEY is coming in from black tupelo with a rush—so much so that it is crowding our queens and delaying brood-rearing. See page 306. As we are running almost entirely for increase we should prefer a more moderate flow. Prospects for white tupelo are excellent, and this is the main source of honey for that district. In spite of the backward weather in February and March, conditions are very good for making the expected increase. Perhaps the question may be asked, "What is the 'expected increase'?" Well—er, we'll tell later *after we get it.*

Later.—Black tupelo stopped on the 6th with white tupelo about ten days off.

H. J. Mercer of Los Angeles in Sing Sing Prison, New York.

ACCORDING to a clipping from the Los Angeles *Times*, reprinted in the *Western Honey-bee*, H. J. Mercer, lawyer, beekeeper, supply manufacturer, and supply dealer at Los Angeles, has been given a sentence of nine years in Sing Sing prison for forging a mortgage of \$250 on an aged woman. We are also informed that he was wanted in Los Angeles "on a felony complaint charging him with hypothecating fraudulent notes alleged to be worth \$2000." It is further alleged that detectives who have been on his trail assert that he got away with at least \$75,000 from other sources in the past year or two.

We are very sorry to hear this—more so because Mr. Mercer was a bright keen young man, capable of earning an honest living as a lawyer, as a bee-supply dealer, or as a beekeeper.

History repeats itself. The young man started out as thousands of others have done with a good bringing-up and with an honest heart. As nearly as we can learn, he was trying to do things on too large a scale. He incurred obligations which he could not

meet, and then something happened—temptation, flight from justice, and finally prison walls.

The reader should not get H. J. Mercer confused with L. E. Mercer, a prominent beekeeper of California who enjoys an honorable record.

More Expensive to Winter Bees in the South than in the North.

WHILE in many places bees in the South can work every day in the year, that simply means that the bees that go into late fall or winter will not see spring. The old bees will constantly die off, and the young bees will take their places. This means that brood-rearing will continue with interruptions all winter. If 10 to 15 lbs. would take care of a colony of bees for six or seven months in a good cellar in the North, it would probably take four or five times as much to carry the same colony through for the same period in many parts of the South. Said Mr. O. O. Poppleton, "My problem is not so much to encourage brood-rearing as to keep it down. Constant breeding compels the bees to fly for water, pollen, and nectar, wearing themselves out.

If a colony in southern Florida can gather a surplus of 50 lbs. average, when the season is at its best, those same bees will probably gather, during the entire season, four or five times as much honey as a similar force of bees would in the North. If it were not for the constant renewing of bee blood our Southern beekeepers would have a great bonanza of honey production.

The Old Original Book, "Langstroth on the Hive and Honey-bee," Reprinted.

THE reprint of the old original edition of "Langstroth on the Hive and the Honey-bee," dated 1853, and containing over 400 pages, in cloth, is now ready for distribution. Our older readers will remember that

this old volume, about the time father Langstroth brought out his hive and system, was one of the most charmingly written and entertaining books that was ever published. Indeed it so stirred A. I. Root that he wrote in his A B C of Bee Culture:

What a gold-mine that book seemed to me! * * * Never was romance so enticing—not even Robinson Crusoe; and, best of all, right at my own home I could live out and verify all the wonderful things told therein.

There have been repeated calls for a reproduction of this famous work, so much so that The A. I. Root Co. finally decided last fall to make a reprint of it. It has now been reproduced in paper and binding with all the original cuts just as it appeared in 1853, without any change whatever save an introduction by C. P. Dadant.

Some of our younger readers might feel that perhaps this work would be out of date. While this is true, of course, to a certain extent, the fact is, that father Langstroth was *60 years ahead of his time*—so much so that he revolutionized beekeeping throughout the world. The old original book that helped do this is well worth reading—especially so as it contains many tricks of the trade that are being heralded to-day as something new. From a historical point of view it is invaluable. No bee library can be complete without it.

We are able to furnish this old edition, just as it came from the hands of father Langstroth, the father of American bee-keeping, in 1853, for \$1.00 postpaid; or in connection with GLEANINGS at the very low combination rate of \$1.50, or clubbed with the A B C and X Y Z of Bee Culture, a \$2.00 volume, for \$2.50; or with Dadant's Langstroth Revised, \$1.85.

Wintering, and the Prospects for a Honey Crop.

LATE reports show general good wintering throughout the country, with the exception of one or two areas where the late cold weather seems to have put the bees in a weakened condition. One district is in and around Philadelphia, and other districts are in the middle-southern States. However, we do not remember the time when the bees seemed to have been in better condition for harvest than this spring.

The prospects for a honey crop are from fair to good. Conditions were unfavorable in California, but late rains have improved the situation. Northern Florida is showing up well, and the southern part will do better than usual.

While the clovers do not show up quite as well as they did a year ago, there is every

reason to suppose there will be a fair crop from that source. A good deal will depend on whether there is a drouth from now till the time the clovers begin to mature. Spring is opening up favorably and rather early everywhere.

Later.—We are having regular blizzards of snow and rain.

Beekeeping Taught in Y. M. C. A. School.

WE are in receipt of a program announcing a course in practical beekeeping to be given in the Y. M. C. A. schools of Louisville, Ky., on Thursdays from March 26 to May 28 inclusive. We regret that it arrived too late for our April 1st issue.

OUTLINE OF COURSE.—J. O. DUNKIN, INSTRUCTOR IN CHARGE.

Thursday, March 26, "Possibilities in bee culture—How to begin." (Illustrated with moving pictures.) Richard Priest Dietzman. Thursday, April 2, "Inhabitants and industries of the hive," J. O. Dunkin. Thursday, April 9, "Equipment—location and arrangement of apiary," J. P. Martine. Thursday, April 16, "The hive and how to handle it," Walter C. Furnas. Thursday, April 23, "Swarming of bees—transferring," Ernest W. Brown. Thursday, April 30, "Enemies and diseases of bees—remedies," Otto F. Recktenwald. Thursday, May 7, "How to produce comb honey," Richard Priest Dietzman. Thursday, May 14, "How to produce extracted honey," J. P. Martine. Otto F. Recktenwald. Thursday, May 21, "Interrelation of bees and plants—Robbing in the apiary—Details about honey and beeswax," J. O. Dunkin. Thursday, May 28, "Feeding and wintering bees," Walter C. Furnas, Ernest W. Brown.

For full particulars write Y. M. C. A. School, W. H. Lippold, Director, Third and Broadway, Louisville, Ky.

This is a step in the right direction, and deserves the encouragement and financial support of every beekeeper. Educational work of this kind is strictly in keeping with the purpose of such schools. Beekeeping has been, unfortunately, left out of our school work of the past; but it is coming now more and more to be recognized, not only in our public schools, but in our agricultural colleges. The two most prominent at the present time are those of Amherst, Mass., and Guelph, Ontario, Canada. The tide is rising, and coming generations will feel the impetus and benefit of college-bred beekeepers in the same measure and in common with other agricultural pursuits.

Natural Pollen Far Superior to Artificial.

At our Apalachicola yard we have been furnishing our bees with artificial pollen substitutes, when natural sources were lacking. While we succeeded in starting up brood-rearing by giving bees common wheat

flour such as we make bread of, yet it was easy to see that the natural product was far superior.

Said Mr. A. B. Marchant, whom we regard as one of the best authorities on bees in the United States, "I believe, Mr. Root, the reason why natural pollen is so much more effective is because the bees get a small amount of nectar at the same time. If we can furnish nectar or sweetened water along with our artificial pollen, we may be able to get practically the same result. But somehow we do not know yet how to make the combination."

Mr. A. B. Marchant discovered that common white wheat flour would be taken by bees about as readily as any other artificial substitute. He spread some old combs out in a sheltered location, and then sprinkled common flour over them. The smell of the combs attracted the bees, and both he and his son Ernest have discovered that the bees will take the flour from these old combs far more readily than they will from pans or trays. Mind you, the combs are not put in any hives, but placed outdoors where all the bees of the apiary can have access to them. Mr. Ernest Marchant, at our suggestion, tried the experiment of mixing flour and thin sugar syrup; but he soon discovered that the bees would daub themselves up with the sticky paste. Notwithstanding he was feeding thin sugar syrup in Boardman feeders at the entrance of the hives, the pollen substitute on the combs did not yield the results of the real article.

Mr. A. B. Marchant's idea is that thin nectar should be fed to the bees in such a way that they will get a supply of nectar and flour both at the same trip. We know that bees require saliva or nectar to mix up pollen and stick it in their pollen-baskets. Now, who is there who is going to solve the problem of making an artificial combination of the two that will yield the same results as natural pollen?

Out-apiaries Operated by Motor-boat vs. Wagon or Automobile Trucks.

DURING our recent trip to Florida we had an opportunity to compare the two methods of transportation between yards of bees. In Florida, especially yards near rivers, bays, and lakes, a gasoline-launch is the prevailing means of going to and from yards, carrying stuff back and forth, and it is a very nice way. It is free from dust and dirt, bad roads or mud, scaring horses, and punctured tires. There is nothing more invigorating or delightful than to go tippy-tappy from yard to yard in a gasoline-

launch; and, conversely, there is nothing more aggravating than a boat out in mid-bay or river that will not go. If out in a large body of water, the wind and waves rising, there is no particular delight in monkeying with a motor that positively refuses to mote. Some of these two-cycle motors are an aggravation in this respect; but as a general thing an experienced boatman will overcome all of these difficulties. One disadvantage of the boat is slowness of travel. Unless one owns a high-power boat, which would be too expensive, the speed will not be much over six or eight miles an hour, while an automobile would double or treble that rate of travel. But one of the great advantages of the boat for outyard work is the smoothness of running. There is no jar or jolt, no puncturing of tires, no slipping or sticking in the mud, no delay or stoppage on account of rain, but an abundance of fresh air, so necessary in moving bees up and down the river or bay. Still again, a motor boat that wil' carry forty or fifty colonies will not cost over \$200 to \$300, and a second-hand boat can be obtained for half these figures, while an automobile would cost four or five times these amounts. The only possible trouble from the boat may be leakage and motor trouble; while in an automobile truck there are a hundred and one things that may go wrong, any one of which may stop the machine on the road. Unfortunately, however, most of the good locations are remote from rivers, bays, and lakes, and the great majority of beekeepers will have to submit to the cost and inconvenience of wagons and motor trucks.

Bees Recognized in Farm Papers.

MORE and more the value of bees is becoming recognized in the agricultural papers of all kinds. The progressive fruit-journals, most of them at least, have given the bees their rightful credit while the farm papers voluntarily run editorials telling of the value of bees for pollinating blossoms. It indicates the beginning of the end of this wholesale spraying of blossoms.

The *Connecticut Farmer* and *New England Farm* in their issue for January 31 have a splendid editorial that is right to the point. We quote here a few sentences at random:

We have long been blinded to the beneficent offices of these little creatures. Without them horticulture in all its departments would perish. * * * Strange to say, there are any number of fruit-growers who make all sorts of wild claims that bees puncture the skin of fruit. There is no evidence on record sufficient to convict the bees of any such depredations. * * * In one of Mr. VanPelt's addresses at the

State Board of Agriculture meeting he told of the efforts made by western farmers to rid the country of sweet clover, as they considered it a noxious weed of the worst character. They even went to the extent of proposing that beekeepers be driven out of the country, because bees help to spread sweet clover; but of late these same farmers have come to realize that the much-despised sweet clover is a forage crop, second in importance only to alfalfa. When fruit-growers argue that bees destroy fruit they are taking the same stand taken by western farmers in their misguided crusade against sweet clover. * * * * Every fruit-grower ought to realize the positive necessity of delaying spraying operations until the blossoms are so far gone that the bees have ceased to work upon them. To spray trees in bloom, thus poisoning the bees, is a case parallel to that of the miser who killed the goose that laid the golden egg.

We have always felt that articles in a bee-journal along this line are not very convincing to fruit-growers, for they naturally think that the bee-journal is prejudiced. However, after our special numbers on bees and fruit we have noted with a considerable degree of satisfaction that the beekeepers make use of the material thus furnished in stirring up an interest in their local papers and in the farm magazines. Speed the day when the truth may become widely known!

The Case of C. I. Graham, who, it is Alleged, has been Scattering Foul Brood in Some of the Western States.

FOR some months past we have been receiving complaints regarding Mr. C. I. Graham, formerly of Oroville, Cal., but now of Reno, Nevada. It is alleged that he has been moving diseased bees from place to place, scattering foul brood wherever he has been. It is also claimed that his dealings with several persons have been unsatisfactory; that he buys or rents bees, alleging that he is going to form a big stock company.

Other parties go on to say that his methods are slovenly and careless; that if he had foul brood every beekeeper in range would get it, that he somehow gets control of a lot of bees and moves them into a new territory, and that it apparently makes no difference to him (Graham) whether the bees are diseased or not; that when he is through extracting he scatters his scraps and leavings of combs out to be cleaned out by robbers; and, of course, the bees of his neighbors, if there is disease in such combs, would be infected. Among these complainants are several men of standing.

In the *American Bee Journal* for November, page 368, a clipping was published to the effect that this Mr. Graham was arrested and found guilty of exposing diseased brood-combs, to the injury of the bees in

the vicinity. We were also informed that another case against him was pending. Just what the outcome of this was we have not been advised.

Believing it is always fair to give the accused a chance to defend himself we wrote to Mr. Graham, explaining the nature of the complaints, and under date of Feb 21, at Reno, Nevada, he writes a very good letter, from which we quote the following:

I have no desire to attack any one; and the attacks made upon me are unjustified and unjustifiable. I have been made the subject of bitter persecution here in order to drive me out of this field as a competitor. The article in the *American Bee Journal*, to which you refer, was furnished by Inspector Guthrie, of this county, for that purpose, and was the result of malice and ill will—a feeling that I do not reciprocate. It is true that I was arrested, and tried in a justice's court here last fall for exposing diseased bee-combs. My apiary was visited by the inspector when he knew I was absent, and he took with him two men who were my avowed enemies; and while they did not produce any diseased bee-combs, as they would have done if they had found any, I could not, with these three hostile witnesses against me, escape conviction. . . . I am here, and here I am going to stay; and as I am not guilty of any wrong-doing I have no fear of what my enemies can do to me. I have been taught from childhood to return good for evil, and I shall do so in this unfortunate controversy. When the opportunity arrives that, with my 23 years of experience as a bee-keeper, I can do Inspector Guthrie and the other beekeepers of this community where I live a good turn, I shall be on the spot to do it.

We can not think there was any malice or ill will on the part of Inspector Guthrie. As inspector of foul brood he had a duty to perform.

While we do not believe that Mr. Graham is malicious, yet the testimony in the form of various letters before us would indicate that he is slovenly, careless, and neglectful in his methods—so much so that his bees would readily get foul brood if it were anywhere around. It would appear, also, that if he got the disease he would not be greatly concerned about it. When such a man practices migratory beekeeping, moving bees from place to place by the carload, he would make trouble for beekeepers in any territory where he might go. Either Mr. Graham (if the above charges are true) should mend his methods, or his bees should not be admitted into localities protected by law. Assuming that he means just what he says, he should at once clean up his bees and keep them clean (if he has not done so already), or go out of the business. His neighbors have moral as well as legal rights that should be respected. It is surely up to Mr. Graham if he has been scattering foul brood unintentionally or otherwise to do his neighbor beekeepers "a good turn." Will he do it? We are going to take him at his word that he will.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.

I'M surprised at the general belief in breeding for improvement among writers in April 1st GLEANINGS. Not one, I think, opposes it.

If thin super foundation is worked less readily by the bees than medium brood, as shown, p. 139, extra-thin super must be still worse. I've no use for extra-thin, anyhow.

NO JOKE, friend Byer, about rarity of bees here, on second-crop red clover. In Ontario you say *some* bees work on it, but in England *all* hive bees can work it, while here rarely any.

MY FIRST thought on seeing those bees on cover of GLEANINGS, April 1: "Those pictures are faulty; but they're 'the real thing.'" I don't see how you got dead bees to look so life-like.

O. BROMFIELD, I use five splints to hold medium brood foundation in frame. Don't know whether four might answer. I boil splints in wax till it stops frothing, then put in when wax has cooled to be just liquid; no special tool for imbedding—just the edge of a little board soaked in water.

G. M. DOOLITTLE says, p. 209:

Any beekeeper who has a spark of love for his pets is all awake for the season when the first song of the bluebird breaks forth on the air, and the musical croak or peeping of the frog in the pond is heard once more.

That's not written in rhyme, but it's poetry of the right sort. The man who isn't thrilled with such sounds is not a true beekeeper at heart, and thrills of that sort are beyond the purchase of money.

A. I. ROOT, you seem just a bit inclined, p. 275, to think we might as well sit complacently with folded hands and continue a lot of denominations of churches with the difference between tweedle-dum and tweedle-dee. Now look here; you old fellows may as well make up your minds to get out of the way for us younger ones, because the uniting of the sects is coming, believe me. In Canada a movement is on foot to unite Methodists, Congregationalists, and Presbyterians; in this country some denominations have already united, and it's in the air all over the land. When Billy Sunday was in Marengo all the churches worked together as one. The idea that they could do better work together then and better work apart afterward! Get out!

E. G. FINNUP, Finney Co., Kan., the world's champion sweet-clover grower, also an extensive stockman, has 1500 acres de-

voted to "the weed." From a 100-acre field he harvested 900 bushels of seed, bringing \$13,000. He considers sweet clover the equal of alfalfa; makes earlier pasture; will not bloat cattle; stands dry and freezing weather better; grows on land where alfalfa will not; yields with him a greater tonnage of hay; and grasshoppers don't bother it, but are very fond of alfalfa.—*Country Gentleman*, 657. [The farmers of Kansas seem more generally to recognize the value of sweet clover as a forage-plant than the farmers in some other parts of our country. In Kansas they have demonstrated that land that is too poor to grow any thing but prairie grass will grow sweet clover, and sweet clover is making that land come up in value in a way it never did before. It is very strange that some apparently up-to-date farmers, and even some scientific agriculturists in the East, regard sweet clover as a mere weed. Years ago they so regarded alfalfa. History repeats itself.—ED.]

I THINK I was the first to publish that I had had a queen reared over a colony with a laying queen. That was accidental. I think I have never since succeeded intentionally. Last summer I tried it over ten colonies—dead failure; but in two or three cases where I had no thought of rearing a queen, where there happened to be brood in an upper story I was surprised to find a nice brood-nest with a young laying queen. Who knows the secret of success? [When Doolittle first brought out his book on queen-rearing, there did not seem to be any thing so very difficult about raising queens in an upper story with a laying queen below; but it will be remembered he used perforated zinc between the upper and lower stories; but later on he found that the upper-story proposition was not a success except during a general honey-flow when brood-rearing would be stimulated at its best. While we do not believe that the mating of queens in upper stories is a general success, we never regarded it as a difficult thing to accomplish when there were suitable conditions. Queen-breeders have for years raised cells in upper stories, and do it yet, as the simplest and most successful plan for securing well-fed baby queens. It is only a step further to get these young ladies married. Well, if you will turn to the last edition of the A B C and X Y Z of Bee Culture you will find some of the requisites for cell-building in upper stories.—ED.]

J. E. Crane

SIFTINGS

Middlebury, Vt.

J. L. Byer tells us, page 145, all about his method of spring feeding and management, and he is sound to the center on this important subject.

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What is the matter with your bees, Dr. Miller, that they do not work on second crop of red clover at Marengo? They work on it readily here in old New England. See page 125.

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The Feb. 1st number of GLEANINGS, with its beautiful pictures of fruits and loaded fruit-trees, and advice about spraying, made it look almost like a horticultural journal. What a satisfaction to know that our bees are often of as much value to our neighbors as ourselves!

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A truckman told me to-day that his horse would grow poor as fast standing in the cold as at work. Of course; for it requires fuel as surely to produce heat as power; and if bees have to endure long-continued cold it will just as surely reduce their vitality as work, and so shorten their lives.

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Mr. Mayo's experience with bees in an orchard and grove, page 42, corresponds with my own. A little shade is good; but dense shade is bad. We have one yard partly in dense shade, and part but little shaded; and we find those having but little shade have done the best for a number of years.

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Dr. Miller says, page 125, that a Swiss hotel and sanatorium advertise for honey, and remarks that "our hotels haven't got up to that yet." Well, perhaps not exactly; but we have supplied a sanatorium for some time, and I put up a lot to go to a hotel in one of our larger cities this very forenoon: and it is not the first hotel to buy of us either.

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"Incomparable observer" is what Darwin called Henry Fabre, the celebrated French entomologist. Some of his works have been translated into English, and are full of interest to any lover of insect life. "The Social Life of Insects," "The Spiders," "The Life of a Fly," and "The Loves of Insects," are written in a simple, delightful style, and ought to be in every public library.

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A. I. Root's temperance column reminds one of an old law enacted three or four

thousand years ago: "If an ox gore a man or a woman to death, the ox shall be surely stoned, and its flesh shall not be eaten; but the owner of the ox shall be quit. But if the ox was wont to gore in times past, and it hath been testified to its owner, and he hath not kept it in, but it hath killed a man or woman, the ox shall be stoned, and its owner shall be put to death." Alas! who shall count the number of men and women that a modern beast has gored? Shame on our boasted civilization that allows both the beast and the owner their liberty!

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A good deal has been said of the value of parcel post in GLEANINGS, for beekeepers. We have used it for shipping small lots of honey, but lately we shipped a box of two dozen small bottles of honey to New York, which, on arriving at destination, was found to have had nine of the bottles taken out without regard to the command "Thou shalt not steal." On inquiring at the local postoffice we were informed that they were not responsible, as we had not had the package insured. At the express office we found the package could have been sent for even less by express than by mail. Perhaps we shall have to conclude that the most valuable service of the parcel post is in compelling the express companies to reduce their rates to a reasonable sum. [In many cases express is cheaper than parcel post.—ED.]

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Arthur C. Miller tells us, page 131, that stimulative feeding "should always be done in the fall. Give them all you think they will need, then double it, and then add half as much again for good measure." Now, that is generous, and it always makes us feel good to be generous; and it never pays to be stingy with our bees; but let us examine this statement a little. I find many colonies the 1st of October that I think need at least 35 lbs. of heavy syrup. Suppose I double it. That would be 70 pounds; then half as much again would make 87½ pounds—more than the colony could store in an eight or even a ten frame hive. I tried feeding very heavily once, many years ago. How I enjoyed seeing the bees lie out in October! Next spring they didn't lie out, but a good many of them were *laid out*. No, Miss or Mr. Beginner; feed enough and then stop. Mr. Miller is a good fellow and a great thinker, and I enjoyed his notes immensely; but some of them need to be discounted a little.

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.

In the March 1st issue, under High-pressure Gardening, A. I. Root speaks of the potato industry and the great sale of seed for southern markets by E. E. Harrington. I never see the subject of the potato business mentioned but that I am at once interested. I followed the potato-growing business for a good many years in the Kaw River Valley, in eastern Kansas. At that time nearly the entire valley from Kansas City to Topeka was one vast area of potato-fields. We discovered early in the history of the industry there that northern-grown seed is far superior to any we could preserve; for that, indeed, was the secret of the greater success with the northern grown. We secured nearly all of our seed from the Red River Valley of the North, and used nothing but the early Ohios. The secret is, the fact that the potato dug (of necessity) as soon as matured, holds all of its vitality. In the South we were obliged to keep our native seed for at least eight months after maturity, and its vitality was very much exhausted by planting time. I am the originator of the White Early Ohio potato. I discovered two white tubers, evidently sprouts, when following the potato-plow in a field of the Red variety. I placed them in the cellar side by side. Unfortunately one of them froze; but, *very* fortunately, the other did not. I planted it in the spring. About half of its crop went back to the red stock. Only the white ones were replanted, and so on until the fourth season, when they came pure white. I had them grown in the Red River Valley of the North for two seasons, then sold the entire lot to the C. J. Vaughn Seed Co., of Chicago. They were introduced by this firm.

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No rain has fallen since February 21. The entire period from that date until March 21 was a period of cloudless skies. March 16 a desert wind began blowing—one of those dry electric winds known as a “norther” that drives our moisture away faster than any other weather condition. On the 18th the record for high temperature came nearly being broken, it having reached the highest point for 39 years. These conditions, together with the warm winter, have forced the spring forward till the flora now blooming is a full month or more ahead of its season. Last year the first orange flower I saw open was on the 7th day of April. This year the bloom will be almost entirely gone by that date. The

sage has been blooming more or less for the past month, and is now almost at its best, more than a full month ahead of its season; for as a rule we figure on little surplus from the sage before May 1.

Some of the most peculiar conditions have come with the season I have ever seen: and while the bees have improved every moment, building up from very small colonies to full-fledged honey-gatherers, yet they are behind the season. February 23 I discovered that I had about forty colonies very short of stores and long on brood. Fearing they would have to face a week of bad weather at any time, I decided to feed them at once; for such conditions would have forced them to starvation. I fed 17 colonies a gallon each of sugar syrup. My son returned to the apiary in a few days to feed the rest. My anticipated bad weather did not come, but I was not able to return to the apiary for a period of two weeks. When I did return I not only found some of my syrup still in the feeders, but all had an abundant supply of honey gathered from the sage, and many colonies storing surplus. The sage has been yielding freely until the 21st, when the weather became cooler and the clouds overcast the sky. So far I have not seen a trace of our old enemy the sage weevil. We shall doubtless harvest at least a fair crop from the sage. The condition of the bees in the sage belt is not gratifying. The average loss will reach 50 per cent at least, according to reports received. Reports from San Diego Co. indicate that the loss there has been very heavy. I am informed by Inspector Meeker that in my own county (San Bernardino) the loss has been fully a half, some apiaries having lost as high as 80 per cent. I always figure myself in San Bernardino County; but in reality my bees are in Riverside except those at my home.

On account of the heavy loss of bees, together with the slowness of many colonies in reaching the supers, we can not expect an excessive heavy crop from the sage, especially if we should not have more rain during the spring, which looks probable.

Later.—Since writing the above, light rains have fallen, which improves the prospects to a great extent. The button sage will develop to its fullest capacity, and is assured of moisture to sustain it until nature bids it cease blooming. The white sage, wild buckwheat, etc., now seem assured of their needed moisture.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.

BEES AND APPLE-BLOSSOMS.

"I see that Doolittle lays considerable stress on the pollen and nectar which come from the early bloom, and especially that from the willows and hard maple. How about the apple-blossoms? Are they not of equal help to the bees with those of an earlier blossoming? I had supposed that the nectar the bees gather from apple-bloom is the greatest factor of all the year in stimulation of brood-rearing in time for an army of bees for the white-honey harvest."

I consider your supposition as regards the "greatest factor" correct, providing the bees have gotten well under headway with their brood when the bloom from the apple appears. But to have this bloom of the greatest value, brood should be started so that 8000 to 12,000 bees are nearing maturity when the apple-bloom begins to open. I consider the great value of nectar from apple-bloom to lie in its stimulating quality, toward plentiful brood-rearing, and in producing stores to tide over the period of scarcity which immediately follows this bloom for a time approximating twenty to twenty-five days.

More than half a century ago our beloved M. Quinby penned these words: "In good weather, a gain of 20 pounds is sometimes added to the hives during the period of apple-blossoms. But we are seldom fortunate enough to have continuous good weather, as it is often rainy, cloudy, cool, or windy, all of which are very detrimental. A frost will sometimes destroy all, and the gain of our bees is reversed; that is, their stores are lighter at the end than at the beginning of this season of flowers. Yet this season often decides the prosperity of the bees for the summer. If there is good weather now, we expect our first swarms the fore part of June; if not, no subsequent yield of honey will make up the deficiency." And no truer words were ever uttered, as applied to central New York; and what applies to this locality will apply quite generally to the Northern States.

From this we see that the apple-tree bears no mean relation to the person interested in apiculture, outside of the fruit it yields. Apple-blossom honey is somewhat rank and strong when first gathered; but after staying on the hive till thoroughly ripened, it assumes a nice spicy flavor, though when at its best it can hardly be said to equal that from clover or basswood. I believe that, if we could have the same

number of bees in the hive in apple-blossom that we do in basswood, and if the weather could be equally good, the yield from this source would be nearly or quite as good while the bloom lasts; but the trouble is, the bloom comes so early in the season that we do not have the bees; and, still worse, the weather is usually such that the bees do not have an opportunity every year to work more than enough to encourage brood-rearing, and sometimes not even that. For this reason I have found that it does not pay to try to work the colonies up to an unusual strength with the hope of securing a surplus in comb honey from this source.

It is quite amazing what a good colony which has wintered well will do where there is continuous good weather when the apple-trees are in bloom. In 1877 we had a good yield from this source—so much so that many colonies stored, capped, and finished from five to twenty pounds of surplus in the section supers, besides storing in every available cell below not occupied with brood or pollen; and the result from the apiary that year was the highest ever obtained by the writer, which was an average of 166 2-3 pounds from each old colony in the spring. Another year, when we had continuous good weather throughout the whole bloom, a hive on the scales made a gain of 31 pounds during the bloom.

I well remember trying a guessing experiment that year. I counted the bees as they came in at the entrance loaded with nectar. They were well at work at about seven in the morning, and the first count showed 42 loaded bees coming in during one minute: the next minute, 46; the third, 41; the fourth, 44. At about ten o'clock I counted again, and the average at this time was 49 to the minute on five counts, while at one o'clock the average was 51 per minute, and at five o'clock the number of loaded bees entering the hive proved to be nearly the same as the first count in the morning. I figured that each bee carried a drop of nectar; then estimated the number of drops it would take for a pound, calling nine pounds as the weight of a gallon of this nectar as it came from the fields. Then I "struck an average" to get the number of bees per minute for the whole day, and multiplied this number by the number of minutes worked, and decided that the result of that day's work would be 7½ pounds. I had weighed the hive in the morning, before any bees went to work, and the

Continued on next page.

BEEKEEPING IN THE SOUTHWEST

Louis H. Scholl, New Braunfels, Texas.

Texas and California, both with a reputation as leaders from an apicultural standpoint, seem to have an even start this year as concerns the prospects for a good honey season. With an unusual amount of rainfall through the winter months, and rains last fall and this spring, indications are for a large crop of honey in each of these two States. Strange it is, though, that, while both of these States are leading honey-producers, Texas does not affect the northern and eastern honey market, while California does. Instead, Texas consumes almost all of her own honey, assisted by Oklahoma, where a great deal of Texas honey finds a good market.

* * *

The more I study the matter of unpainted hives vs. painted ones, the more convinced I am that painting them is the only sensible thing to do. These observations, of course, are for this part of the country where the summer sun is perhaps somewhat more severe. The more unpainted hives I see in my travels around, the more I detest them on account of their unsightly weathered appearance and the gaping corners and split sides or ends. Some of the wise ones claim that the latter trouble is all due to the way the hives are nailed; but I am here to tell you that there is not so much in this argument. Of course, there is a difference between good and poor nailing of hives: but I want to say that there is also a great difference between well-nailed painted hives and the best-nailed unpainted ones. The paint should be put on just the same.

* * *

Locality does not have so much effect on some things as has been claimed, it seems. For instance, I remember a good many times when our bees were just as cross toward the end of a good honey-flow, and with honey still coming in "at a good clip," as Dr. Miller quotes Dr. Ludden, p. 163. It seems that, when the hives have been stored full of the golden stores, the bees are the more determined to protect them against any possible intruder that may come along and deprive them of these after the long hard toil of storing. It has often seemed to me that a colony of bees that has its hive exceedingly well filled with honey is more difficult to handle at that particular stage than under ordinary conditions. This has come to my notice several times with colo-

nies that ordinarily behaved very nicely and did not seem to repel our manipulations as when we approached the hives to take away the surplus honey toward the end of the honey-flow.

* * *

Keeping bees within the city limits has been defended by the writer in a number of instances, and our own number of colonies has ranged from a few to forty and more colonies right in the heart of this city of some four thousand inhabitants. While we have had no trouble on account of their presence from neighbors and others, we have decided to move them all away to a safe distance to prevent them coming back and loitering about the honey-house as they now do. In this respect they have annoyed us a great deal—so much so that we moved all of them away once before. But the fact that various colonies and nuclei can be picked up here and there at different times, and can be more conveniently cared for at home, this number has again increased to a dozen or so. The annoyance about the honey-house and the honey-wagons, and every thing else, is so great that we prefer not to have them about. It is true that "the other fellow's" bees may come just the same; but with ours out of the way the number will be decreased appreciably.

Conversations with Doolittle

Continued from preceding page.

evening weight showed a gain of 8 pounds and 2 ounces in excess of that in the morning, so I had guessed within ten ounces of what had really come in that day.

But I think I hear our questioner asking "What has this guessing-bee to do with practical apiculture?" Well, it had a lot to do with me, for it brought to me the joy and fun that was to be found with the "trade" called "apiculture." Very few indeed have made a practical success in life where they entered any trade or calling with nothing in view but the money there was in it. When toiling for the dollar, every thing is drudgery. But when a person loves his calling so that he is eager for the next day's fun, every night as he lies down to sleep, he not only gets the joy and fun, but money as well.

GENERAL CORRESPONDENCE

OPERATIVE COSTS; THE FREQUENT WASTE OF TIME AND LABOR

BY ARTHUR C. MILLER



Arthur C. Miller

In the Jan. 15th issue, page 50, I tried hard to bring home to the readers some of the economics of bee culture, using the new method of queen introduction as the vehicle to convey my ideas. I rather flat-tered myself that I did very well, and thought I said things in such a manner as would set some of the beekeepers to thinking, and to considering the cost of some of their methods. In fact, I felt quite sure that I had so carefully expressed myself that there would be no missing the message I wished to give.

The editor gave it a kind notice in his department; but as he seems to have been so interested in the percentage of queens lost that he quite missed the matter of dollars and cents, I fear that I was not as clear as I thought. The editor also slipped up in his percentage figures, as I think I can show. He says the loss by the cage method in his yards is 10 per cent, and that by two of the most expert queen-handlers in the country. Then he says that of 100 queens sent to a customer, the latter lost 10 per cent; and it was right there, I fear, his arithmetic gave out. He lost 10 per cent, the customer lost 10 per cent of the same lot of queens, and ten plus ten makes twenty. But of all the queens he produced he had only 90 per cent left to sell; so, to be really accurate, his customer lost but 10 per cent of 90 per cent, or 9 per cent—total, 19 per cent. But that isn't correct, though it may appear to be; for if his loss was 19 per cent, then he must have lost one of the extra ten he bought; so the real shrinkage on the original lot of queens was 20 per cent. Now that, mind you, was by experts

When I said the loss by the cage method was about 40 per cent, I based my state-ment on answers to queries, on testimony picked up when inspecting and by personal experience. If you choose to pull in the poor beginner by the scruff of his neck you will find his loss will average nearer sixty than forty per cent.

Whatever the editor does with my figures, he must double his own. He based his on

experts, while I based mine on all classes, which, from the lesson I was trying to teach, was the proper basis.

Accepting the loss of twenty per cent by experts as the correct one for the com-mercial beekeepers, and leaving the novice and amateur out of the question, we still have a startling money loss by the cage method of queen introduction. If memory serves me aright, the editor's output of queens is about 5000 annually. For the sake of easy figuring, we will use the retail price of un-tested queens as the unit price, to wit, \$1.00. That means \$5000 worth of queens. Of this he confesses to losing 10 per cent by the cage method of handling, or \$500. His customers lose an equal amount—a rather serious loss on a \$5000 business, eh?

Now figure the loss to all the beekeepers of the country, and set it over as one of the overlooked costs of honey production.

But two other items he has quite over-looked—the labor (*time* used by the bee-keeper in the cage plan of introducing and subsequent inspection, etc.), and time colo-nies are without a laying queen, and the consequent upset and indirect loss. To be sure, the thoughtful man does his requeening when this latter is trifling; but it must be reckoned, be it large or small.

If the method of requeening without dequeening proves successful, we may save the time of hunting up the old queens, and another very large cost item will be removed.

In other words, beekeepers are more wasteful of *time* and *labor* than they have the slightest conception. By some of the most popular and most widely taught meth-ods of bee culture it costs as high as \$5.00 and even \$6.00 per year merely to handle each colony of bees. It costs the best of us, when using our brains all the year to save us labor during "the season," approxi-mately \$2.00 a year to "handle" our bees. Under exceptionally favorable conditions the cost has been lowered to \$1.00 per year: but I believe \$2.00 to be much below the average, and am supported in this view by some careful investigators.

In the term "handle" I include all the expense of keeping and operating a colony of bees, such as interest, taxes, depreciation, insurance, and labor. Supplies, such as sections, super foundation, hives for swarms, etc., are no part of *operative cost*.

A man with sufficient ability to operate a commercial apiary successfully and profitably market the crop, should be able to earn at least \$5.00 per day at any one of several other lines of business, so I used that figure on a ten-hour day, or 50 cts. per hour as time value in apiary work.

If some of the advocates of thorough spring overhauling, of stimulative feeding, of building up weak colonies, and of the hundred and one other needless and worse than needless operations, will just keep account of the actual time used in the apiary for one season, they will be staggered at the total.

It will not take much thinking to estimate the *hours* given to each colony in a year. You can figure it by taking the total of days the owner and his helpers spent at it and dividing it by the number of colonies; or if the beekeeping is a side line, and attended to at odd moments, it is not difficult to determine how long each operation takes.

Hunting up the old queen and getting in a new one takes perhaps as much time for the average beekeeper as any part of the work, and for that reason I used it to illustrate what I had to say on economics.

If beekeepers had devoted to operative costs a small part of the time and thought they have given to supply costs they would have profited immeasurably. It is well to keep cost of equipment as small as possible, that interest charges and depreciation may be less; but in trying to force supply costs down, there is danger of getting such poor goods, etc., as to result in ultimate serious loss. Within certain limits it is wise to put quite a sum into the equipment provided the annual operative cost is thereby reduced. If the increase in prices of supplies serves to turn the beekeeper's thoughts to the economics of his business, it will be worth much to them. I would go even further, and say that I think the rising price of supplies a blessing, for it will deter many persons, who are not financially able to enter the beekeeping business, from undertaking it; and it will gradually crowd out those who are poor managers, always short of cash, and always hurting the honey market by sacrificing their crops.

Devote your thoughts to the expenses of operation, and let cost of supplies alone for awhile.

Providence, R. I.

[Try as hard as we may, it is not always easy to make the other fellow understand just what we mean. If we missed the point that our correspondent was making, it is apparent to us, at least, that he did not entirely get our point of view as to the

actual loss by introducing on the cage plan. If we introduced 5000 queens in our apiary, and the loss from the cage plan were 10 per cent, then if the other fellow who bought them of us should lose 10 per cent in introducing, it would be proper to add the two percentages together, and thus make the 20 per cent loss. Mr. Miller is correct when he says we reared 5000 queens. We actually did better than that. But there was only a very small percentage of fertile queens that were introduced into our yards —probably not one per cent of the number reared. On this basis there would be 99 per cent that would have only *one* introduction instead of two; therefore the percentage of loss on the part of the expert would be, as we figure it, not higher than 10 per cent. But possibly our correspondent was figuring on the loss in introducing virgins. If he figured that way, then we shall have to confess that the loss by introducing on the cage plan would go away beyond 20 per cent.

Mr. Miller says that a man with sufficient ability to operate a commercial apiary successfully and profitably, and market the crop, should be able to earn at least \$5.00 a day at any one of several lines of business. He then figures on a ten-hour day, and operating expenses 50 cents an hour for apiary work. As a general thing, one good man can furnish the brains for half a dozen or a dozen men or boys with an abundance of muscle and a little experience. Said an old and successful beekeeper the other day, "I can hire all the men I need, and some pretty good ones, at \$1.50 a day; but, mind you, I furnish the brains. They do the work." Ordinarily we would say that 15 cents per hour is a low figure; but 20 to 25 cents will usually buy a pretty good man in the capacity of operator to work on general plans supplied by the boss. Mr. R. F. Holtermann goes one better. He hires student help every year, pays them so much a month and board, and a percentage on what the season develops. His labor item probably would not exceed 15 cents an hour; but his own time is probably worth 50 cents or more per hour. If we suppose that the average man who operates 1000 colonies is capable of bossing five or six other men, the relative cost per hour would be reduced in proportion. For example, five men at an average price of \$2.00 per day would earn \$10.00 per day. The bee-man himself would make this \$15.00, furnishing the brains and doing some of the labor. The operating expense of the six men then would be \$2.50 a day, or 25 cents an hour. Perhaps this is what Mr. Miller has in mind.—Ed.]

REQUEENING WITHOUT DEQUEENING

BY J. E. HAND

On p. 851, 1913, J. B. Merwin outlines a method of requeening without removing the reigning queen. This article introduces a subject that has been discussed pro and con in the journals with the unanimous verdict that, while bees will tolerate a plurality of laying queens or queen-cells, acting on the principle that "to the victor belong the spoils," they will not, as a rule, tolerate a virgin queen at mating age in the same colony with a laying queen of any age, unless she is actually failing, even though separated by a queen-excluder. There are exceptions to all rules, however, and undoubtedly friend Merwin's case is the exception and not the rule. Some 20 years ago Mr. Doolittle became quite enthusiastic about rearing queens in a hive having a laying queen, the bees having access to both compartments, but was compelled to abandon the project because a large majority of the virgins were either killed or driven from the hives by constant nagging and worrying by the bees as the queens arrived at mating age.

Viewing it thus, it is safe to assume that friend Merwin's success was due to one of two conditions—either the laying queens were actually failing or weak, or else an unusual honey-flow had a soothing effect upon the disposition of the bees temporarily; for many manipulations can be performed with bees at such times that would result in

disaster during a dearth of nectar. It is generally conceded that a plurality of laying queens are safe in any hive until they happen to meet when both are in fighting trim, which may not take place for several days, or even weeks. This gave rise to the false theory that any number of queens would co-operate peacefully in the same hive if the bees would accept them. The late E. W. Alexander became very enthusiastic about it; but nature asserted her power, and the queens fought in mortal combat until but one remained, and the theory was exploded.

It strikes me that the method of requeening without dequeening, as outlined by A. C. Miller, page 850, gives promise of ultimate success when operated in conjunction with the smoke method, for the reason that a queen on arrival by mail is slim and active, while the reigning queen is sluggish and corpulent; hence if they meet after the bees have become reconciled to the new queen the chances are all in favor of the new queen. But the chances are even that they will meet while the bees are still viewing the new queen with suspicion, in which case the bees would undoubtedly decide the contest in favor of their recognized monarch. This contingency could be easily provided against by using a division-board between them for two or three days.

Birmingham, Ohio.

REQUEENING WITHOUT DEQUEENING IN NEW ZEALAND

A Duel Between Two Queens

BY N. SMEDLEY.

In the December 1st issue, 1913, page 851, is an article on requeening, by J. B. Merwin. This is a step in the right direction, and will prove a cheap and safe method of requeening. I have just tried it with 100 hives. In some cases where cells were already started, I grafted these without caging the queen, and they were accepted and drawn out to fine cells. This copy of GLEANINGS came at the right time, as I was thinking over this requeening problem. I was killing the old queens and grafting what cells I found already formed. Any found queenless would receive a laying queen from another hive, and the hive the queen was taken from would be grafted. The queen's wings are clipped. Killing these queens in the middle of January (in my locality), I

consider is no loss; for by the time the last of the eggs are hatched out the honey-flow is about done.

I have also tried the smoke plan of introducing virgins; but the virgins were not successful in ridding the hive of the old queen, but they were accepted in every queenless hive. I had a one-frame observatory hive with a laying queen. Toward evening I ran in a virgin queen. She passed the guards, and I watched her climb up the frame. The bees took no notice of her. She went among them quietly and seemed at home; but presently she came to the queen of the hive, and they fought immediately, rolling down the frame locked together, on to the bottom-board. Now, here is the point: As soon as these queens started to fight,

the workers rushed down upon them and separated them and killed the virgin.

**SWARMS ENTERING HIVES OCCUPIED BY
OTHER BEES.**

I should like to know if you have ever known the following to happen: I was working in an outyard of 55 colonies at swarming time. A swarm issued from a three-story hive at one end of the yard. I hived it in a box and set it to one side, as I wanted to finish with the hive I was working at. About five minutes later a second swarm came out lower down the same row of hives. This was a good after-swarm. At this time I had finished my work at the hive mentioned, and stood waiting for this swarm to settle. To my surprise it went into the hive that had just swarmed, the swarm being still in the box. I went to this hive and watched them going in. Presently a virgin queen alighted on the front board. I caught her and killed her. I destroyed all queen-cells but one in this hive, and the bees went to work a week later in another out-yard. In working through this yard I came to a hive ready to swarm. The queen's wings were clipped and the cells cut out, but I found afterward I missed one. Half an hour later this hive swarmed. I picked up the queen and caged her, and was pre-

paring to receive the swarm in a prepared hive when I noticed them entering two hives about twelve yards away. One hive stood in front of the other. One of these hives had swarmed earlier that day. The other was a division from a strong hive earlier in the season. There were no bees returning from the swarm to their hives, or at least not enough to be noticed.

Te Awamutu, N. Z., Jan. 31.

[The occurrence of swarms going into other hives that have just swarmed, while not common, have been reported from time to time. We do not know how to explain them, unless there are a few stragglers from the swarm that are returning to their old home. These attract the bees of any other swarms that may be in the air with the result that such bees go in the hive just vacated. If cells are destroyed there is no reason why the two households can not unite as one family.

Your account of how the bees took a hand in the queen fight is interesting. It shows that they do sometimes interfere in behalf of one of the queens. There is evidence that at other times they do not meddle in the row. We should be glad to get any other facts that have actually been seen.
—Ed.]

SOIL FERTILITY AND HONEY PRODUCTION

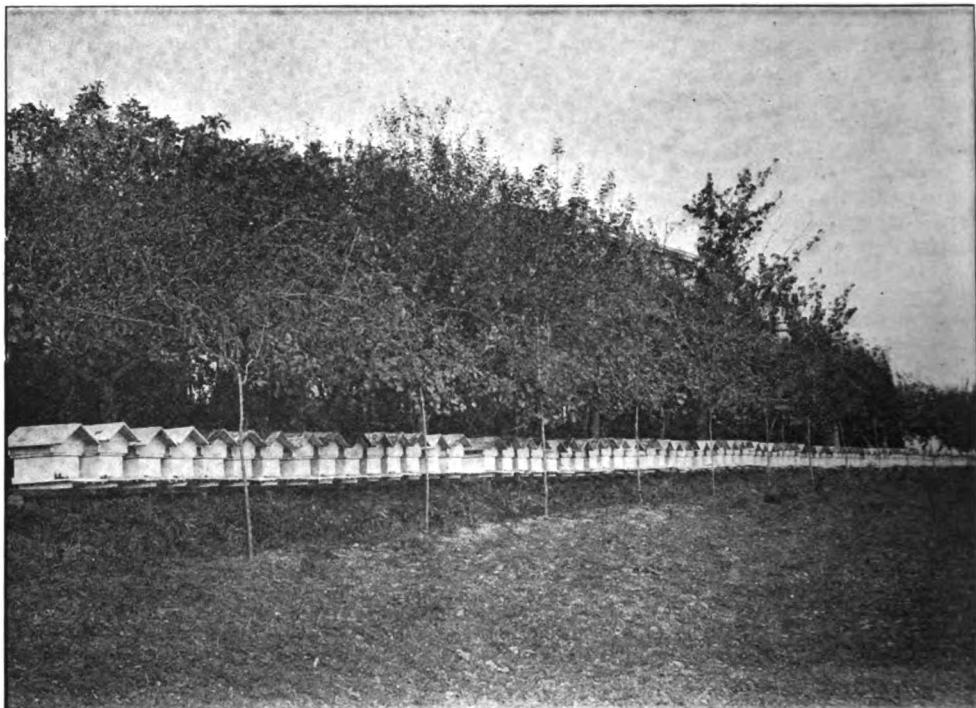
The Value of the Clovers for the Purpose

Paper presented by Prof. H. A. Surface, of Harrisburg, Pa., at the convention of the National Beekeepers' Association in St. Louis.

It is generally agreed that we can not afford to plant for nectar or honey production alone. In other words, to sow a field to any kind of crop, merely for the sake of the honey it might produce, is scarcely profitable. If, however, the field crop can be made a successful primary feature, the factor of honey production as a secondary feature may be entirely clear gain, as most profits come from comparatively small things. We note, for example, that the packing-houses of Chicago utilize absolutely every part and by-product of the hog excepting the squeal, and it is now proposed that they utilize that in making phonographic records to aid the old-style noisy beekeepers in making more noise to help hive their bees.

In this day of keen agricultural competition every factor possible should aid the husbandman. Natural conditions are against success from continued cropping or from the old-style farm methods. It becomes necessary to keep up with the times by

adopting such new methods as the scientific experts show are beneficial. It is impossible for any husbandman to succeed without considering as an entire unit all the factors that enter into modern agriculture. I mean to say he may be up to date in many things; but if not in all, he may fail. For example, he may select seed in accordance with the methods of Holden or Hunt; he may fertilize in accordance with the latest directions from Hopkins or Thorne, and may cultivate according to Hilgarde, and spray according to Gillette, Forbes, or to Howard; but when the crop returns are to be sought he must see the "handwriting on the wall" or hear the saddening statement that was heard by the rich young man who went to Christ, "One thing thou lackest." This is organic matter with soil fertility. We can not afford to buy enough commercial fertilizer to depend upon it entirely, year after year, as a sole source of plant fertility. It will eventually make a rich man poor. We do not have enough barnyard manure to



We have been favored by a visit from Mr. C. P. Dadant, as well as the Viscount Triaca, of the *Apicultural*; Mr. Herrod, the Secretary of the British Beekeepers' Association, and Prof. Cotini, Director of the Italian Federation of Beekeepers. We have taken some photographs, which we are sending you, together with one of our apiary and of our Director, who is also instructor at the Royal Agricultural School at Imola.

Castel San Pietro, Bologna, Italy, Dec. 5.

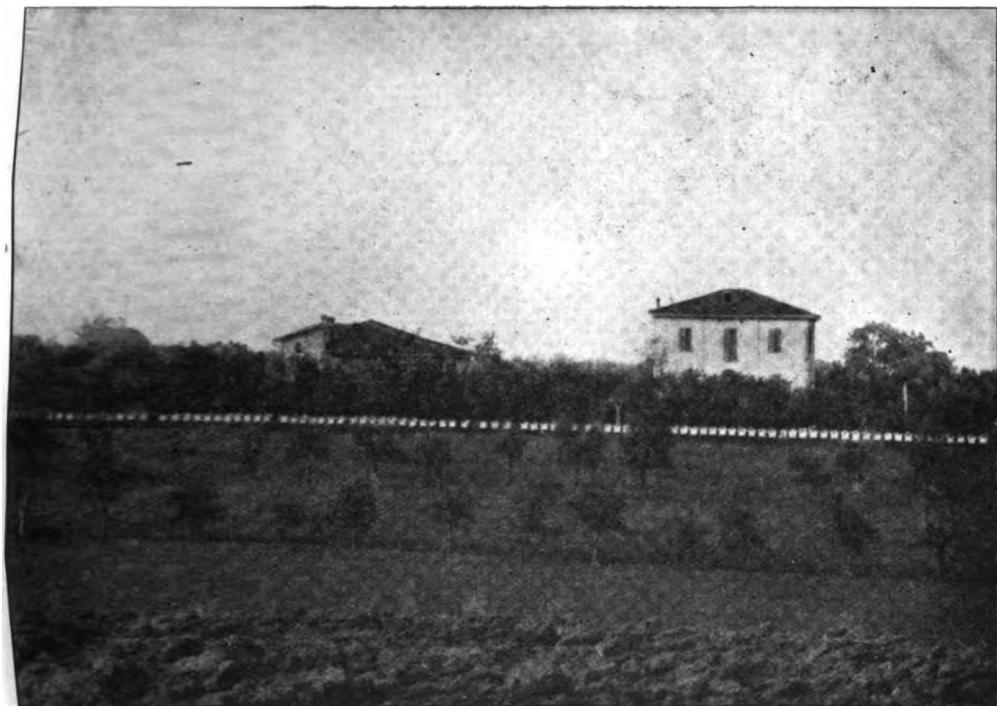
GAETANO PIANA.

meet the needs of our extensive agriculturists or horticulturists. How, then, can a poor man increase his yield by economical means? This is a question of such far-reaching importance as to justify our attention for a few minutes, even though at first it may be beyond any thing pertaining to beekeeping, and apparently inappropriate before this assembly.

Let us remember that the greatest element of plant food is that which is commonly called "nitrogen." It is by all means the most expensive element in our commercial fertilizers, and the most difficult to get into the soil by artificial means. At the same time, it is the most abundant element in the atmosphere. Practically eleven pounds of this material rests upon each square inch of the earth's surface. Why is it not directly utilized? It is because it must be made over or transformed into the kind of compound that can be taken up by plants. An illustration is to be seen in the lowly field bean. In its raw state it will scarcely sustain human life; but let it be properly cooked, and there is no more nourishing article of food for mankind. Thus, when the nitrogen in the atmosphere is trans-

formed it becomes at once the most stimulating or invigorating element in the food of plants.

How is this transformation effected? Here is the important point of our story. This is done in nature's laboratory by myriads of organisms known as bacteria that live in a mutually beneficial relationship, known as symbiosis, upon the roots of the legume plants. These are the members of the pulse or pea and bean family, botanically known as *Leguminosae*. Upon the roots of all members of this family these beneficial bacteria, gathering and transforming nitrogen, live in great numbers, forming little lumps or nodules. Upon practically each kind there is a different species of bacterium, as is shown by the fact that the nodules taken from the roots of different kinds of legume plants differ in size, shape, color, and general appearance. These nodules, or lumps, are large enough to be seen readily by the unaided eye. Take up, for example, the roots of the common white clover, sweet white clover, the red clover, crimson clover, alfalfa, the locust-tree and the redbud-tree, keeping the surrounding earth with them until they are



A more distant view of one of the apiaries of Gaetano Piana, Castel San Pietro, Bologna, Italy.

placed in water and very gently washed to avoid breaking off their most minute fibers. Note the small white, pinkish or brownish lumps that are there to be seen. These are the nodules which are homes of myriads of bacteria which are plainly seen when any lump is crushed under a compound microscope of high power. Not only are such lumps the homes of bacteria, but they are composed almost entirely of available nitrogen, transformed from the unavailable nitrogen of the atmosphere by the vital action of these microscopical organisms, and thus rendered fit for immediate use by the plants upon which they grow, as well as by other plants that may be grown in the same soil. Therefore, it can be seen that, the more of such legume plants are grown in any soil, the more fertile will the soil become from the standpoint of increase of nitrogen and organic material therefrom.

As the plants mature they draw upon the nitrogen stored in the nodules on their rootlets, using part of it in the formation of tissue, especially seeds.

A bulletin just at hand, No. 145, from the Agricultural Experiment Station at Brookings, S. D., says, "Every ton of clover hay takes 40 pounds of nitrogen from the air, and every ton of alfalfa takes 50 pounds from the air through the roots of

these plants." Hence by growing these crops, or other legume crops, and returning them to the soil, either directly or after they have been transformed into manure, a supply of nitrogen in the soil may be maintained, provided, of course, that sufficient amount of legumes are grown.

So much for the primary story of increasing soil fertility, which is really more important than increasing the size of the farm. Now, there is a secondary point for consideration, which, for us as beekeepers, is of no small importance. This is the fact that, among the very best honey-producing plants of the world, are the legumes. In connection with crimson clover and locust-blossoms in the spring we have a close succession of alsike, white clover, sweet yellow clover, alfalfa, and sweet white clover, all of which the honey-bees work on to a very remarkable extent. Every one of these legumes here mentioned is of great benefit as a soil renewer, and at the same time they are recognized as being the chief honey-producing plants of America, with but few exceptions.

Another important point of the story is that, in addition to being soil-renewers and nectar-yielders, they are our greatest forage-plants. No plants contain as much protein, or are as beneficial as feed for live stock.



Mr. C. P. Dadant at G. Piana's apiary, Bologna, Italy.

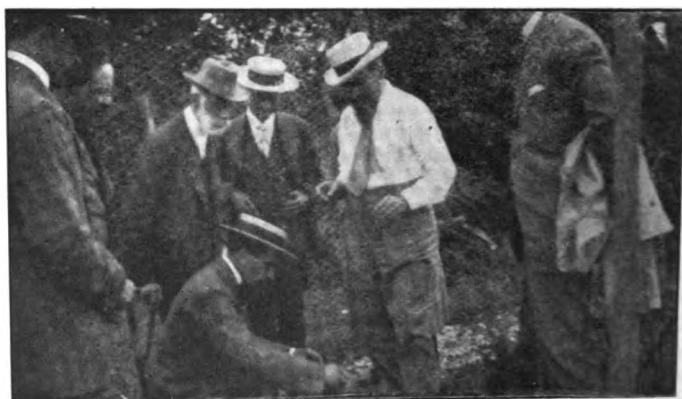
The energy of the workhorse and the yield of milk from dairy cattle, increase when these plants are used either as pasture or hay. The growth of pork is greater when these plants supplement the grain feeds. The production of eggs is increased by their proper use in the poultry-yard, and, in fact, there is a report of a banquet of Western growers in which one of these plants (alfalfa) furnished not only bread and vegetable food, but also a food used as breakfast cereal.

To get the benefits of such plant growth for the beekeepers it is necessary that they bloom, and that the bees have opportunity to visit the blossoms. This means they should grow at least until the blossoms are commencing to fade or wither. It is known that the heaviest nectar secretion is just at the time of the opening of the bloom. After a flower has been visited by a bee, and fertilized, the secretion of nectar stops and the blossom fades and drops. Here again, good agricultural practice is in accordance with apicultural profits. It so happens that the best results for hay or stock food are obtained by cutting just before the seeds form, which is just after the blossoms have passed their stage of perfection and are withering; also, when these crops are to be turned down for soiling crops the best results are obtained by plowing them down when they reach this same stage

of perfection of development. To plow down a great crop before blooming means to put into the ground too much water in the form of thin sap, and it is supposed there is special danger of souring the soil then. The juice in a plant commences to become thick and sticky after it has passed the important vital period of full bloom. That is when it can be turned down with safety, and is also the time when

it has done its greatest work in transforming and fixing nitrogen; but let it be remembered that the fertility is not lost by using the plant as stock food. If the manure, liquid and solid, is saved and returned to the field it will have as great fertilizing value as though it had been plowed down, and the grower will have the increased benefit of its feeding value for his live stock.

From the further standpoint of the greatest fertility from the nitrogenous nodules it must be remembered that their best stage of perfection is reached when the plant is at its highest point of development, or just at the end of blossoming and the beginning of the ripening of the seed. Thus whether the plant be plowed down, or cut for the silo, or dried as hay, the best results for honey production, for soil fertility, and for animal food, are to be obtained by letting them reach a fair stage of development or perfection rather than cutting, as is the



Mr. Dadant, with Viscount Triaca, of *L' Apicoltore*; Mr. Herrod, of the British Bee Journal, and Prof. Cotini, of the Italian Federation of Beekeepers, at the Piana apiary.



Bees of D. M. Bryant, Ethelfelts, Va., working on rye chop as a substitute for pollen.

fault of so many husbandmen, before the blossoms open.

It becomes important, therefore, for every one interested in the tilling of the soil to see that a definite effort is made to plant legume crops at every opportunity. They can be used as filler crops at the time of year when nothing else is grown, as, for example, by sowing crimson clover just before the last time the cultivator is run through the cornfield, and growing a sod until the next spring. Last year the writer sowed three quarts of crimson-clover seed and half a pint of cowhorn-turnip seed to the acre in a cornfield; and after the corn was harvested he removed tons of the best turnips for cow food and table use, and at the present time has a good clover sod on what would be otherwise only barren and stubble. The time has come when it must be regarded as slothful for a man to leave his soil without a clover crop as we formerly regarded it for a careless person to leave his implements exposed in the field during the winter. From this crimson-clover sod, next May will spring a wealth of scarlet bloom, looking like a field covered with ripening strawberries, and humming with the busy bees as in the swarming season.

It must be remembered that the legumes are averse to thriving in acid soils. The

soil wherein they are to grow should be sweetened by the use of at least one ton of lime or one or two tons of finely ground limestone per acre, before seeding. In the case of the corn, this can be done by spreading the lime broadcast just before planting in the spring.

Soil inoculation is one other important point in order to be sure of an abundant growth of the soil bacteria and nitrifying nodules, and, consequently, the legume growth. This can be effected best by sowing broadcast two or three hundred pounds per acre of soil taken from a field which has previously grown the legume crop that is to be planted.

Another means of inoculation is to sow the crop and let it reach fair maturity, or even go to sod again on the same soil. Then turn it down and seed again. After two or three repeated efforts on soil where lime has been used to prevent acidity, there will be an inoculation which will result in a good growth in the future. A third proposed means of inoculation is through commercial cultures prepared by different commercial concerns, and sent by mail. This is the most expensive and least satisfactory means of inoculation. As a rule, we do not recommend it. The best means of inoculation is by sowing soil from the field that has grown

the crop desired. Apply it in the evening or on a cloudy day, just before sowing seed, and harrow in both soil and seed.

While as a rule each legume has its own kind of bacterium, yet there are exceptions, as, for example, in growing sweet white clover to produce the inoculation for alfalfa, as in this case the bacterium is the same. It is to be further remembered that the legumes have their own proper or best respective seasons for seeding, and the one to plant at any time of year depends upon the time of year when the ground is available for said planting. For example, we sow red clover and alsike in our grain-fields in February, when the ground is honey-combed with frost. Just as early as the soil can be worked in the spring we sow Canada field peas, with or without oats. A few years ago in our own fields we drilled Canada field peas, oats, red clover, and alsike, and had a good stand of the three

legumes on the soil, so that, as the peas and oats were cut, the clover-field remained. Later in the spring, and just after corn-planting, is the proper time for planting cow peas, soy beans, and field beans or soup beans. In midsummer is the best time for sowing crimson clover, and in the early part of August is the proper period for seeding with alfalfa. Later in August, or early in September, we sow hairy or winter vetch, either with or without rye, but prefer one peck of vetch and two or three pecks of rye to the acre to give one of the best crops that can be used for a winter-cover crop for renewing soil fertility, and also keeping the bees busily and profitably engaged.

In conclusion let me say that the man who learns how to use one or more legume crops in each crop rotation, and keeps the legume always on his ground as a cover crop, will have honey in his hives and money in his bank.

ONE HUNDRED AND NINETY COLONIES IN A VILLAGE

BY L. F. HOWDEN

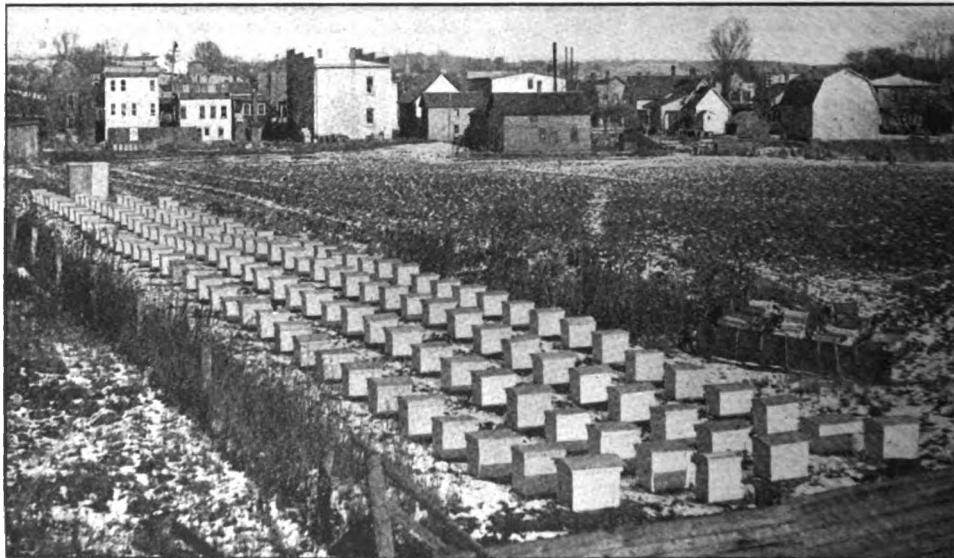
Our apiary is located in the village of Fillmore, and contains at present 190 colonies. We have had very good luck with our bees, having produced as much as five tons of comb honey in a season, the average usually being 50 to 60 lbs. per colony.

We are using double-walled hives, and will transfer the 40 colonies on the other side of the fence this spring, as we have had several failures with single-walled hives.

We have not lost a colony in our double-walled hives so far this winter.

The bees have been located two years as shown in the picture. They were formerly kept on our farm three miles from Fillmore. The instances are very rare when they have stung people, and I haven't heard of a single complaint. No one ever tried to make out that they are a nuisance.

The picture was taken from the Pennsyl-



L. F. Howden's apiary of 190 colonies in the village of Fillmore, N. Y. Photographed by C. A. Blastein.

vania Railroad bridge, located about four rods from our apiary. Our principal sources of honey are alsike, clover, white clover, and sweet clover; also fruit-bloom, basswood, and buckwheat.

Fillmore, N. Y.

[Is there another apiary of this size

located within the corporate limits of a village? An apiary of nearly 200 colonies "in town" is quite rare, although apparently in this case the bees are just outside the main part of the village. We expected to use this article in our March 1st issue, but it reached us too late.—ED.]

DO BEES SPREAD PEAR AND OTHER KINDS OF BLIGHT ON FRUIT TREES?

If So, is the Damage More than Offset by the Good They do?

BY CHARLES B. PIPER, M. D.

I am enclosing a communication received from Mr. Jackson, of the Experiment Station, Oregon Agricultural College. I had written to him about the possibility of the dissemination of blight by bees, and place before you what he has to say on the subject.

I have also perused Circular Bulletin No. 7, Crop Pest Series No. 1, "Fire-blight of Pear and Apple," by Prof. Jackson. The strongest statement in this publication is found on page 9. The statement is, "The fire-blight germs are naturally disseminated chiefly by insects at blossoming time. As noted above, active hold-over cankers exude a sticky ooze, attractive to insects, in which the bacteria are present in enormous numbers, and any insects visiting such cankers will become covered with the germs. If, after becoming infected in this way, they visit the blossoms for nectar, they inoculate the flowers, whereupon the germs find an easy access to the inner tissues of the blossoms through the nectaries."

Leaving this publication for a minute I would quote from Circular Bulletin No. 20, from the same Experiment Station, "The Pollination Question." On page 5 I read. "Probably 99 per cent or more of the transfer of pollen is done by insects. Prime among these may be mentioned the honey-bee. Bumble-bees, ants, flies, and short-tongued bees play an important part. However, there is no doubt that the common honey-bee is by far the best of all, and it will pay every orchardist to have a few stands among his trees."

Realizing as I do the great menace to our orchards of fire-blight, it is naturally somewhat disquieting to think that honey-bees among my fruit-trees would be instrumental in disseminating blight. At the same time, we are all convinced of the value of bees as pollinating agents, and it is a problem to determine at this time whether we shall do without the bees as pollinizers, and in a

measure protect our trees from this dreaded blight. I am endeavoring to collect all the information possible, and have thought that you might possibly have some opinions gleaned from wide reading.

I have an orchard of twenty acres in the Bitter Root Valley, Montana, in which I have hoped ultimately to keep possibly 40 or 50 colonies of bees. At the present time I am undecided as to whether it might be a good procedure. That western country is undeveloped; the apiarists are usually unskilled and not up to date in their methods, and I believe that a good field presents itself to a person of intelligence and industry. However, I wish to be absolutely assured of the wisdom of any move before making it.

Milwaukee, Wis.

[The letter from Mr. Jackson is as follows:]

Our Crop Pest and Horticultural Report, dealing with many other important subjects than the one you mention, and our circular bulletin No. 7 on fire-blight, have been sent you. I would say that there is absolutely no doubt but that bees carry fire-blight, as all authorities who have worked on this disease agree. It is partially this that makes the disease so difficult to handle, since cross-pollination is so necessary, and we can not use any methods which would prevent pollination.

Corvallis, Ore., Feb. 2. H. S. JACKSON.

[You need not fear fire-blight, pear-blight, or twig-blight to any great extent. There are certain seasons when all phases of the blight are worse some years than others. A few years ago pear-blight was giving a great deal of trouble on the Pacific Coast. The pear-growers demanded that all the bees be removed from the immediate vicinity, and it looked as if there were going to be a war between the fruit-growers and the beekeepers. At that time I was President of the National Association, and as such I went into the territory to study the matter. I knew that bees were very necessary for the proper pollination of the pear-blossoms, and I felt very sure that, if



Part of A. J. McClanahan's 240-colony apiary near Payette, Idaho. This view shows a

the bees were removed, the pear-growers themselves would be the first to have them come back. I accordingly recommended that the beekeepers remove their bees from the vicinity of the pear-trees. This was done. But the very next year, and the year following, and from that time on, the pear-growers have asked the beekeepers to place their bees as near their pear-orchards as possible.

While we have to admit that bees *can* carry a blight of any kind, as they carry pollen from blossom to blossom, yet the good they do more than counterbalances the damages they do at certain seasons. To remove the bees because there was twig-blight, pear-blight, and fire-blight, would not help matters very much, because there would be wild bees and common ordinary insects that would scatter the blight just the same as it did in California after the tame honey-bees were removed. The only thing to be done is to get as many bees around the pear-orchard as possible because bees are almost indispensable for the proper pollination of a good many varieties of apples, pears, peaches, and certain stone fruit.

Prof. M. D. Waite, of the Department of

Agriculture, went into this matter very exhaustively some years ago, and his decision was most emphatically in favor of the bees in spite of the damage they might do in certain years in carrying blight.

You doubtless would be interested in the last report of the Massachusetts Fruit Growers' Association of 1914 that was held at Springfield, Mass. If you have not seen this I think you would do well to send for a copy. I refer you to Harold L. Frost, of Arlington, Mass., or to F. Howard Brown, Secretary and Treasurer, at Marlboro, Mass. While this does not have much to say concerning the blight question, it does have some very important testimony on the value of bees as pollinators of fruit-blossoms.

I am also sending you our booklet, "Bees and Fruit." You will find further information under the subject of "Apple-blossoms" in our A B C and X Y Z of Bee Culture.

A couple of weeks ago I talked with Mr. Charles Repp, of the famous Repp Brothers, of New Jersey, the largest apple-growers, probably, in the United States. Mr. Repp told me that the more bees they could have the better, and that the question of blight didn't cut very much figure with



over half of the yard. Part of the other half is shown on the cover of this issue.

them because they knew they must have the bees, and the matter of blight was a small item.

You, as a practical fruit-grower, know, of course, that the first thing to do when a

blight shows itself is to cut it off. Of course, if ordinary apple-twigs blight shows up you can not very well do this; but this will last but the one season, and next year it will disappear probably.—E. R. Root.]

A 240-COLONY APIARY IN IDAHO

BY A. J. MCCLANAHAN

The photograph of the 240-colony apiary shown herewith is one of my out-yard 27 miles from my home at Payette, Idaho. It is located near the Owyhee River in Oregon, 7½ miles from Nyssa.

I run my bees altogether for comb honey. I am not genius enough to be an inventor, so I take all of the best bee-journals and keep myself posted on the very latest methods of procedure. I try in a small way whatever I think would be an improvement. If it proves better than my old way I use it; if not, I discard it. In this way, therefore, I lose no time in trying to invent new appliances.

I use a super that measures 17 1-16 inches, inside measure, and use loose section-slats without end-pieces, which make slats

easy to clean and store away in winter. I use only the 4¼ by 4¼ beeway sections.

I still stay by the old bottom-board as made years ago, with ¾-inch opening, and not reversible. I find our climate too changeable for very wide entrances in comb-honey production. Our surplus-honey yields are not as good as they were a few years back, on account of so many colonies shipped in from Colorado the last few years. Some have not been as careful as they should have been about the rights of those who were here before them. Ada Canyon and Washington Co., in Idaho; Malheur Co., in Oregon, all locations for apiaries, are taken up; but if one wants to come here and locate he can easily find apiaries for sale already located; and beekeepers

here would make them welcome. I shipped the first car of honey that was ever sent from Payette Valley, 12 years ago, to Spokane, Wash. Now we ship from 10 to

17 cars of comb and extracted honey per year. Our average is from \$2.00 to \$6.00 per colony, spring count.

Payette, Idaho.

THE ACT OF AN OUTLAW; HOW BEES MAY BE A NUISANCE

BY THE OUTLAW

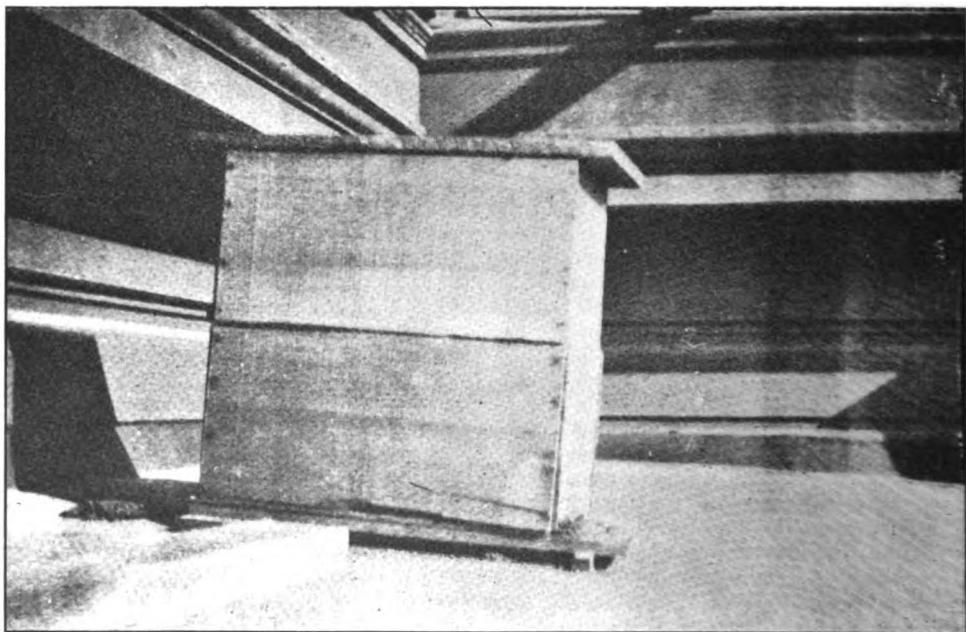
Continued from the March 15th issue, page 822.

With apologies to the Bard of Avon—the question was, to do or not to do; would it be better for the soul to submit to the humiliations and indignities of an outrageous city ordinance, or take up arms against such adverse legislation and attempt to overthrow it? or, as an alternative to both the foregoing lines of procedure, to continue to violate surreptitiously the orders and mandates of the city Solons—in effect, avoid all issues and follow the example of the natives of Kentucky and produce moonshine honey. Well, the Kentucky method was decided upon; and the result was that one bright morning the bees found themselves in a secluded niche on the roof, and there they are to-day.

To those who are unacquainted with conditions where there are ordinances prohibiting the keeping of bees within certain jurisdictions, it might be well to state that in certain parts of the country it is customary to find that there is a city ordinance

prohibiting the keeping of bees within the limits of the town or city. Especially is this true of California cities. The reason for such ordinances, and there is a reason and a valid one, is the fruit industry. While the bees are very necessary to the pollination of fruit, they are also capable of making themselves considerable of a nuisance during the packing and drying of the fruit. To illustrate the manner in which bees are a nuisance, I will tell a story as it was told to me by an extensive producer of honey. He lives in a small town in the San Gorgonio Pass. The town is situated in the center of several thousand acres of fruit, consisting of prunes, pears, peaches, apricots, etc. The surrounding desert and mountains are his bee territory. The pastureage consists of sage, catclaw, alfilariee, and what is commonly known as wild buckwheat. His story is as follows:

"It was in the 90's, the time we had the three bad years. The third season I was in



The Outlaw's bees permanently established in a niche of the roof.



A blue-gum tree (eucalyptus) in bloom.

favored in all that goes to make ideal conditions for the business man who desires to keep just a few colonies, there being large parks; and throughout the residence districts many of the houses are surrounded by a veritable riot of vegetation. Then the streets are lined with trees, principally pepper and eucalyptus. And here a word about the eucalyptus, commonly called gum-tree. There are many varieties of these trees, all coming from Australia. They all keep their foliage throughout the year, and are as apt to be found in bloom on Christmas as on the Fourth of July. The most common is the blue gum, the red gum being next, these being the most hardy varieties, although throughout the principal cities will also be found large numbers of lemon gum, sugar gum, vate gum, and iron-bark gum.

From my own observations, the sugar gum is the most profuse yielder of nectar. The first time I saw a sugar gum in bloom it brought to my mind the instance of my first acquaintance with pamarosa of the West

Indies, there being two reasons—first, the blossoms being similar, each consisting of a hollow cup in the center, surrounded by a mass of white hair-like petals; second, there being a number of bees around each blossom, each bee waiting as it were for its turn to obtain a load of nectar. The sugar-gum blossom, however, goes the pamarosa one better in that it has more odor, the odor being not unlike that of a ripe cantaloupe, and so strong that it conveys to one the idea that the blossom itself is fruit.

As an item of general information it might be stated that the eucalyptus is very apt to play an important part in honey production in California. The scarcity of lumber has resulted in a number of companies being formed for the purpose of planting eucalyptus, and there are to-day thousands of acres of trees that have been planted recently. So I think it safe to predict that, a few years hence, eucalyptus honey will be a staple the same as honey from clover, basswood, sage, etc.

And now a word of explanation: There will be many, no doubt, among the readers of this journal who will not approve of my attitude of mind, the procedure I have followed, or of the story I have written. To them I have no excuse to offer, no apologies to make. As to what I intend to do in the future, I can only say that I have no definite plans, other than that I will continue to keep my bees, and that I am thinking of working more for increase than for honey during the coming season.

San Diego, Cal.

[The eucalyptus is said to be "a wonderful producer of water-white honey, and as many as three bees at one time have been observed to sip up from a single blossom as much nectar" as they could carry.—ED.]



A drive through the park. The trees are acacias and the shrubs myrtle.

AN IMPROVEMENT ON THE ALEXANDER BEE-VEIL

BY J. H. PETERSON

I think the Alexander veil is superior to all others for general use; but the one I use is a modification of the standard Alexander veil as sold on the market. I purchased one of those, but cast it aside. It did not furnish enough shade, and it did not stay fixed on the head as I want it to. However, I have improved it so that I think it is about perfect.

As I make it, it furnishes plenty of shade, being 12 inches in diameter. In the top edge I put a stiff wire, which assists materially in holding it in shape. My most important improvement, however, is the arrangement for holding it in place on the head. Without something of this kind it will fall around from side to side in a way that is a great nuisance. I sew a piece of tape about four inches long, and looped at both ends, across the top of the veil inside, about two inches in front of the center. I then tie a piece of hat elastic into these loops, and long enough to go around back of the head and fit snug. Sometimes, if the elastic is weak, I double it. This holds the veil in place, and is not at all uncomfortable.

I also sew a piece of cloth about 8 or 10 inches wide inside at the back to protect the back of the neck from the sun when working stooped over.

As thus made the Alexander veil becomes

cool, light, and comfortable; and it can be worn without a hat, with entire satisfaction.

Ogden, Utah.



J. H. Peterson's improvement on the Alexander veil.

[We have tested this plan, and found it to be excellent. Indeed, it is the best suggestion that has been made yet, to hold the Alexander veil at such a point that the wire cloth can not touch the head at any point. There are many who like the Alexander principle; and any one having one of these protectors can easily put the idea into practical effect.
—ED.]

OUR APIARY ON THE APALACHICOLA RIVER, FLORIDA; HOW IT LOOKED LAST FEBRUARY THROUGH THE CAMERA

Catching Two Crops of Honey in a Season from the Same Bees

BY E. R. ROOT

The kodak views taken by our boys give a general idea of our apiary at Randlett's Landing, about 16 miles above Apalachicola. Fig. 1 shows the height of the platforms or scaffolding. When Mr. R. L. Tucker put

up these elevated sidewalks in this place he placed them two feet above the highest water-mark ever known on the river; and during the years that have elapsed, high water has never touched the bees.

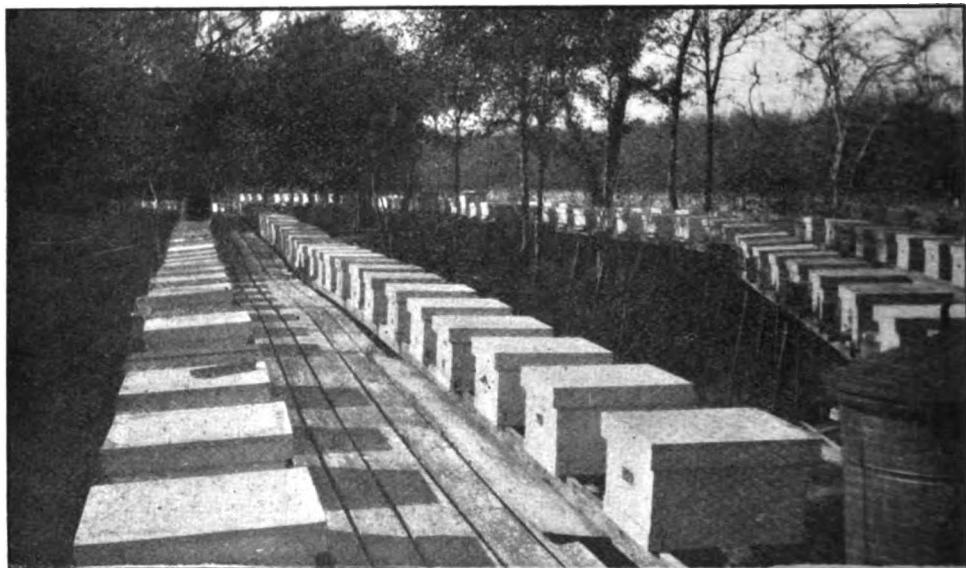


FIG. 1.—A general view of the Root apiary on the Apalachicola River, Florida. The 300 colonies are placed upon raised platforms or scaffolding, some five or six feet high, or above high-water mark. While these platforms are somewhat expensive, they are very convenient in affording easy access to all the colonies. There is no uneven ground, no shrubbery or weeds to interfere with the work or the flight of the bees, and a wheel-barrow has good wheeling to every hive.

One would naturally inquire, "Why not seek out land that will always be above high water, and thus save the expense of these high runways?" There are only a very few locations of that kind, and they are all taken up. Mr. R. L. Tucker sought out this point because of the abundance of black and white tupelo and willow for furnishing early pollen; and he located well, as the subsequent history of the place has shown. Mr. Tucker finally sold out to Mr. A. B. Marchant and went north; but he has since come back, and located another scaffold apiary about four miles down the river. Mr. Marchant, the first year after he bought this scaffold yard, secured enough honey to pay the cost of the investment—bees, platforms, three buildings, and a launch, as seen in Fig. 3; but as he had more locations than he had bees to stock them he sold this one to us, and it is now in charge of his son Ernest Marchant.

As has been already explained editorially, the cold and cool weather of February and March gave us a little setback; but our Mr. Marchant believes that he will make his increase just the same. I told him I did not believe he could do it; but when I saw the honey coming in from black tupelo on the 17th of March I changed my mind. The bees dropped down at the entrances just as they would when working on basswood; and when a comb was pulled out of a hive the

nectar would fall out like rain. But *black* tupelo is not considered a heavy source for honey. It comes in just right to build up the colonies for the main flow later from *white* tupelo, which is a heavy yielder of nectar.

It will be seen from Figs. 2, 3, 4 that the hives are free from weeds, shrubbery, and uneven ground. This is a big advantage. While the *ground itself* just beneath the platforms is uneven, high and low in spots, the platforms are level from end to end. Our men, therefore, have nice clean board walks to every hive in the yard. It will be noticed that these long elevated sidewalks, so to speak, radiate in different directions from the workshops, one of which is shown in Fig. 4. This renders it possible to have tools and appliances, and every thing needed, within convenient reach.

On the 17th day of March 100 supers, consisting of full-depth bodies, were placed on the hives; and Mr. Marchant was expecting to put on as many more the next good fly day. These supers contained frames of foundation. When a colony becomes strong enough, two or three frames of foundation from the upper story are put in the lower one, and an equal number of combs and bees are placed in the upper story, with frames of foundation between. This is spreading brood with a vengeance, and ordinarily in the North such practice

would be inadvisable; but Mr. Marchant assured me that in this climate it could be done in safety. In one case in particular I looked into a single-story hive, with about six frames, where a frame of foundation had been given. Twenty-four hours later it was fully drawn out, notwithstanding it had been raining all day, and a queen was beginning to occupy it. Mr. Marchant is undertaking the problem of getting 6000 frames of foundation drawn out before he ships the bees to Medina. His plan is to build the colonies up to one, two, and three stories high, and then, just before coming back to the North, and after catching the main honey-flow, split them up into single-story colonies, giving each a queen. If every thing works out according to program we shall make a big increase, secure an early honey crop, move north, and then catch a clover crop. We have done it once. It remains to be seen whether we shall do it again.

At this writing, April 1, it would not be wise to say how many bees we can bring back; but if we have any kind of season Mr. Marchant will put in Medina more bees than we ever had before.

In the mean time our managing editor, Mr. H. H. Root, has gone south to Bradenton, Fla. About the 10th of April he hopes to go to Apalachicola and help the boys extract with some new power-driven machinery that he has devised. He is equip-



FIG. 2.—The other platform next to the river frontage of the Root apiary in Florida.

ped with a camera, and probably will come back with a lot of material to present to our readers.

For further references to this Apalachicola apiary, see the editorial department.

BEARS AND SNAKES AT OUR APALACHICOLA APIARY.

There are bears and snakes at our camp. Just after our boat reached camp one day, Joe asked us if we saw that black bear swimming the river. We said "No. Why didn't you shoot him?"

"Didn't have any rifle, and hadn't seen him soon enough, or I would have roped him and brought him to our camp."

"Sure it was a bear!"

"Yes," said Joe. "I could not have been mistaken. As he reached the other shore he stood out in plain sight, shook himself, and disappeared in the woods."

Now "Joe" is no weakling, and not in the habit of telling things he can't do. He is six feet six tall and well developed and a giant in strength. He has been known to pick a 50-gallon barrel of honey from the ground, and set it in a wagon. If any man could tackle a bear in the water and bring him ashore alive he could. I told Joe if the bear came back while I was there he could have the "job" of roping, and I would look on—with an opera glass.

It seems that a bear had been prowling around the A. B. Mar-

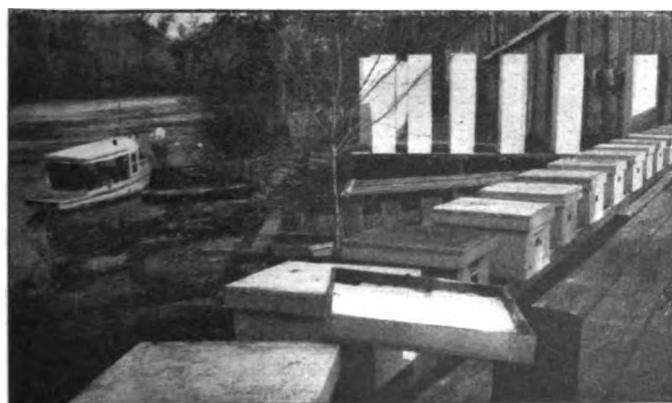


FIG. 3.—Looking out on to the river from the Root apiary. Our launch is shown tied to the dock.

chant apiary six miles above. He had pawed things over generally. This same bear was evidently making for our bees; but seeing and hearing our boat come up the river he took for the opposite shore, and probably will not appear again.

Speaking about bears and their fondness for honey, Mr. A. B. Merchant told of the experience of a friend of his who watched a bear climb a bee-tree. His bearship ascended to the bees and then began biting and tearing away to make the flight hole larger. The bees attacked him so fiercely that he rubbed his eyes and nose with both paws. Down he fell pell-mell, crashing through the limbs till he reached the ground. Nothing daunted he started up again and renewed his attack. Finally the bear got his paw into the combs of honey and began forthwith to smear his face, eyes, and nose with the sticky stuff. There was evidently method in his madness. With this extemporized bee-veil he began and finished his repast on the combs of honey.

This same eye-witness had seen other bears in the same act. A bear will always, he says, smear his face with honey as soon as possible, the evident purpose being to prevent the bees from stinging. How far it would prevent them from using their little weapons is difficult to say. But we do not suppose any of our readers would care to

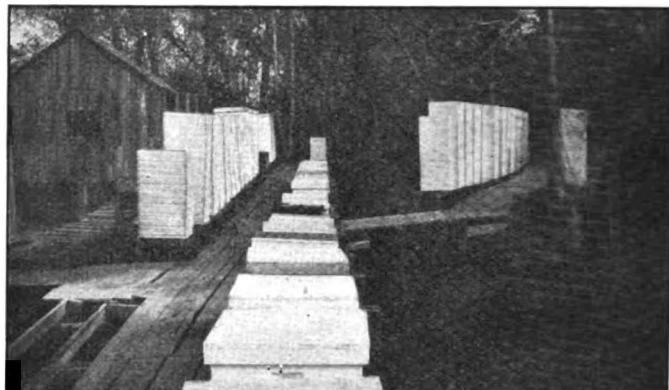


FIG. 4.—Painted hives in readiness for the increase at the Root Florida apiary.

rely on this expedient in the absence of a veil or smoker. If they do will they please tell us how it feels—the honey or the stings.

Speaking of snakes, there were several large ones in the camp, and the boys feed and play with them. They are the so-called gopher snakes, useful in exterminating rats, gophers, and other small vermin. They are so tame that Ernest Merchant caught one and put it around Thompson's neck, and then took a photo; but the negative was poor, or we would produce it.

Camp life at our landing is not altogether uninviting. The boys buy their groceries by the wholesale, and then divide up the expense between them. Ernest Merchant is the cook, and a good one he is. The fishing is good, and squirrel-shooting fine. The camp is 16 miles from Apalachicola, and is seen from the river on the right side as one goes up. More anon.

REPORT OF THE LONDON, ONTARIO, DISTRICT BEEKEEPERS' CONVENTION

BY R. F. HOLTERMANN

The recent meeting of beekeepers from the vicinity of London was pretty well attended, and there was no lack of interest throughout the meeting. Mr. H. Gibson occupied the chair.

"Spring Management" was a subject very ably handled by John A. Lunn, Fингal. He claimed that the foundation for spring should be laid the year before. First, there should be a young queen, for with such there is a better chance to bring the colony through the spring. The old queen might be good; but there are rarely as many young bees to go into winter quarters when

an old queen is present. The requeening should be done the previous August. Protection is a good thing; but Mr. Lunn had seen colonies in box and other hives brought through the winter without protection. The bees should be packed on their summer stands. Each colony should have an abundance of stores; they should not be allowed to run short, as scant stores means less brood-rearing and a poorer colony. When spring comes in his locality (Middlesex County, Ontario), the colonies should be examined, if possible, in March for winter stores. If no honey can be seen between the

combs, the bees should be given combs of honey, or fed.

The colony at that time should not be examined for queens. Probably two weeks later would be better, or as soon as pollen is brought in. At such a time the queen is almost sure to be laying. Then every comb in the hive should be looked over, and any drone comb removed. Or, if such comb is full of honey, it should be placed at the outside of the brood-chamber.

The bees should have plenty of pollen. If they are short, a substitute should be provided. During the spring of 1913, in Mr. Lunn's section the soft-maple buds had been destroyed by frost. He then put out a chop composed of oats, barley, and wheat. The bees gathered what they could out of it during the day, and he fed the rest to the pigs at night.

Some colonies are found weak. If any are queenless Mr. Lunn unites such with the weak colonies. From that time on, the colonies should be examined every ten days or two weeks. As soon as the danger of chilling brood has passed he begins to equalize the stocks so as to have them all in equal condition for the honey-flow. When the hive is fairly well filled he puts on another super with comb. He likes to get a colony in such condition that the brood-chamber and super of a ten-frame hive will be well filled with bees, brood, and honey before the start of the surplus-honey flow.

Care should be taken not to let a colony get short of honey. If short, Mr. Lunn likes to give them a comb of honey; or, failing in that, 5 lbs. of granulated honey; or if he can not give that, then a thick syrup.

BEE-ESCAPES.

Some discussion took place about bee-escapes. Mr. John McEwen claimed that the best bee-escape board he had been able to find is one with an escape in the center, and then an opening through the front strip of the escape-board. The bees, as soon as they find they are separated from the brood-chamber and queen, pile out through the opening in the side, and in an unbroken procession pass down to the entrance of the hive.

Mr. John Newton advocated having the escapes near the edge of the board. The bees naturally run down the sides and edges of the hives, and for that reason pass out of the supers more readily.

R. F. Holtermann stated that he was getting out 250 bee-escape boards with the wire cloth in the board for ventilation, and to allow the heat from the bees to keep the honey warm.

QUEEN-REARING.

Mr. Wm. Elliott, in giving an address upon the above subject, advocated selecting ten of the very best colonies in the apiary the previous season, choosing on the following merits:

1. Color. The queen must be purely mated. His experience was that, among the best working colonies, there will be those with the best color.

2. A colony which starts brood-rearing early in the season, and one which has a large proportion of brood.

3. The workers should have strong, well-developed wings. The strong-winged bees can carry the heaviest loads. There is a marked difference in the build of individual bees.

The colony having the above characteristics to the fullest extent should be kept, from which to obtain larvae for young queens. From the rest, take four or five of the next best colonies and insert in the center of the brood-chamber three or four combs with drone-cells. In the rest of the apiary try to prevent drone-rearing. Queen-rearing should begin from about June 5 to 10. (This applies to southwestern Ontario.)

Graft queen-cells in a couple of bars, and put these in a frame in the upper story of a strong colony with a card of brood on each side of the queen-cell cups. The object of this is to get royal jelly for priming the future cell cups. Next remove the queen in a good colony, saving her if she is young. Combs with only capped brood can be left in the now queenless hive, any other being removed. Give the colony a reasonable amount of pollen and honey, and be sure there is a plentiful supply of young hatched bees. Leave three places in the contracted brood-chamber for frames of grafted cells, the object being to make room for the colony.

The cell cups used are the Swarthmore. The royal jelly is to be taken from the cells in the super previously mentioned. The best time to graft is when the sun is nearing the western horizon. Stand at a west window, and turn your back to the sun so the light will shine into the cells. Take



Drone-laying queen taken from a ball of bees. The worker shown has hold of the queen's wing. Both were dead when found.

16 prepared cell-cups and put a piece the size of a grain of wheat into each cup, jar-ring the royal jelly into the bottom; then with a proper instrument (Mr. Elliott has one that he made for himself), put upon the jelly the very smallest larva. Suspend the cell cups in the holes in the top-bar when ready, and insert them in one of the three spaces in the queenless colony. Do likewise with the second and third frames. Leave the cells until next day in the forenoon. Use but little smoke when examining. It will be found that the bees have accepted two cells out of three. Remove those not used.

Now, this colony has cost too much for one batch of queen-cells; therefore remove these cell cups and place them in the upper story of a strong colony, making sure that there is some other brood above, and also provide a comb of larvæ. Give the cell cups

to a colony with lots of young bees. The queenless colony can start a batch of cells three times.

The argument that queens from cells reared for swarming are better is, in Mr. Elliott's estimation, faulty. The queen-cells almost invariably come from colonies which, on the face of it, can not be as carefully selected, and there is always the swarming impulse in connection therewith.

Mr. Morley Pettit, O. A. C., Guelph, gave an address upon the subject of marketing honey. He advocated the development of the home market, a good article, and fair margins for the retailer.

There was a pretty strong feeling manifested in the meeting that Ontario is producing about all the honey the Canadian market can take under present conditions.

Brantford, Ont.

THE INTRODUCTION OF MODERN METHODS IN SPAIN

BY OTTO HOLLANDER

According to the *Gaceta Apícola de España* of January, 1914, the Beekeepers' Association of Spain at its last annual meeting resolved to give a course of lectures in the various agricultural colleges and experimental stations of Spain, and to solicit the aid of the Government and of the various counties with this end in view.

This society has been doing excellent work for a number of years in that country, which is so well adapted to beekeeping by virtue of its mild climate and the variety of its flora; and through its organ, the aforementioned *Gaceta Apícola de España*, it is working very hard to convince the majority of the beekeepers of Spain of the advantages of the modern movable-frame hive over the old-style fixed-frame hive.

The average American beekeeper can hardly understand why it should be necessary that any society or paper should have to extol the virtues of the movable-frame hive; but it seems that there are as yet a good many farmers, and beekeepers as well, in some of the European countries who are slow to accept new ideas, and who still cling tenaciously to the old box hive of their forefathers.

In looking through these Spanish bee-papers one is rather amused to find that "honey produced in movable-frame hives" should be specially advertised, and, in fact, quoted separately, bringing, of course, a much higher price than the other. The following quotations are taken from the last number of the bee-paper mentioned:

Honey from movable-frame hives (miel movilista), 1st class, 100 to 110 pesetas per 100 kilos.

Honey from movable-frame hives (miel movilista), 2d class, 70 to 85 pesetas per 100 kilos.

Honey from fixed-frame hives (miel fija-ta), 50 to 60 pesetas per 100 kilos.

The prices thus range from \$6.10 to \$9.60 per 100 pounds for the former, and from \$4.30 to \$5.25 per 100 pounds for the latter.

Mr. Joaquin Layret is at the present time the President of the Spanish Beekeepers' Association, ably assisted by the Secretary, Mr. Santiago Baldó, and one can not but hope that their intelligent propaganda may be crowned with success.

[GLEANINGS is heartily in sympathy with the efforts of this association, as well as those of its Spanish colleague *Gaceta Apícola de España*, and we wish our brethren across the sea the best of success in spreading the "gospel of modern beekeeping."—ED.]

Smoke Method of Introducing Used 30 Years Ago

About thirty years ago I practiced the smoke method of introducing with this variation: I would smoke the bees and then take a frame from the center, with adhering bees, and shake them in front of the hive and drop the queen down among them; and after they had run in I smoked them again. My idea was to make it appear to the bees as if a swarm were returning with a queen, and I found it very successful; but as I have generally bought my queens I followed the plan given for introduction, and have nearly always had good success.

Hoopeston, Ill., Jan. 14.

G. T. WILLIS.

Heads of Grain from Different Fields

Questions Regarding Dr. Miller's Honey Crop

1. Would not Dr. C. C. Miller's honey crop be an interesting subject for discussion on the relative merits of the eight or ten frame hives for section honey?

2. How about "shaking energy" into the bees by Dr. Miller tearing the brood-nest to pieces every week or ten days to destroy queen-cells?

3. With this method to prevent swarming, and not wishing any increase, how does he get his young queens?

4. How many supers did he have at one time on that colony that made 384 lbs.?

5. How many swarms did come out on him in spite of destroying the queen-cells every eight or ten days?

6. About when did the honey-flow begin, and when did it cease?

Fredericktown, Mo., Feb. 20. JAS. BACHLER.

1. Yes, that's a very interesting subject; but I hardly know how we can compare two things if we have only one of them to compare. There were no ten-frame hives in the apiary. It is true, however, that up to the time of putting on supers there was no chance for the queen to be crowded in perhaps any of the hives. When any queen had no longer room in one story, she either had two stories, or empty combs were exchanged for full ones, the latter being put where they would do most good. Neither is it certain that there was any crowding after supers were put on, for abundance of super-room was given, and I think that gives more room in the brood-chamber. All things considered, however, my guess would be that if any one has not on hand a supply of eight-frame hives he would do as well or better to use ten-framers.

2. I've had no very indubitable proof that any energy was added by the shaking. Certainly I did no shaking in any case where I thought it would do not to shake. If any one enjoys shaking I don't believe it does any great harm, although it's possible the bees might do just a shade better without it. Then, again, may be they wouldn't. I don't know.

3. Raise 'em in nuclei from best stock *only*, and then stick 'em in wherever needed. Besides, there was the superseding. Please get it into your head that there is no need of swarming to have young queens, for in the natural course of events *every queen is superseded*, and, of course, superseded by a young queen.

4. I don't know. Eight was the highest number on any hive at one time, and such hives were very scarce. I wonder why you ask about 384. Three colonies did better than that, one of them yielding 402.

5. I don't know. I've just looked over the first 20 numbers, and 7 of them actually swarmed. Possibly the general average was more than this, for it was about the worst year for swarming I ever knew. But, of course, no swarm was hived as a swarm.

6. Began about June 6, and closed somewhere about Sept. 20.

Marengo, Ill. C. C. MILLER.

Painting; Is it Done Chiefly for Looks?

If one takes the attitude that painting hives or buildings is done chiefly for looks it seems to me that he has to stand alone against almost the whole world. Our great railroad companies not only paint the wooden but even the iron bridges; in fact, every thing is painted regularly. If this is all being done for the looks only, it is time that we should find it out.

I have hives that have been painted for twenty years, and they are all in good condition. The cor-

ners have not opened up a particle. An unpainted hive will open up at the corners, and become badly warped, in three to five years in this climate. I think Mr. Doolittle's story of the unpainted house that lasted so long is like the man who used tobacco all the time and yet lived to a good old age. That man does not know how much longer he might have lived if he had not used tobacco.

MOVING APIARIES SOUTH.

Moving bees south in the winter seems to me a great scheme. In my locality, in September, when the honey-flow is over, the colonies are in the best of condition to keep right at storing honey; but the flow stops with the hives full of bees, mostly young bees too, and I have to leave from forty to fifty pounds of honey for them to live on through the winter and spring. Now, if I move south, ten pounds or so would be enough, probably, and I could extract perhaps thirty pounds per colony more, which, at 8 cts. a pound, would amount to \$2.40. This would probably pay for moving the bees south and back again in May, and then the honey secured in the south would be all gain. The trouble would be to find suitable locations.

Brush, Col.

DANIEL DANIELSON.

[In your figures regarding moving bees south and back again you do not take into consideration the risk of accident on the way, or of having bad seasons in the South when the bees get little or no honey, but have to be fed considerably. When these possible losses are all figured in as overhead expense, so to speak, the profits one year with another are less. But, at the same time, there are great possibilities in the plan. Of this we shall have more to say later on.—ED.]

Don't be in a Hurry to Condemn Your Own Locality

On page 895, Dec. 15, 1913, H. F. Wilson speaks of Central Oregon as being a good bee country. Now, for the benefit of such people as are in a fairly good place, and are making a little each year from their bees, I want to say, be slow about condemning your own country; don't sell out and move to a new field before making a thorough investigation, and don't forget that any country will have its disadvantages as well as its advantages. I have kept bees in Indiana and Washington, besides in Central Oregon, and I am sure either place is as good as this. We have no foul brood, neither sweet clover nor white clover. Sage furnishes nectar once in about four years. Whenever it rains on alfalfa after it blooms there is no honey from the blossoms that get wet.

Redmond, Ore.

C. H. MILLER.

Camera Tripod to Support the Hive Close to Clustered Swarm

I have had swarms settle on all kinds of places, such as on the top of rail fences, the trunk of a tree, top of a fencepost, etc. I do a little in photography, so have a fairly heavy camera tripod on hand which I have constructed into an artificial swarming device.

I first bored a hole in the center of a spare bottom-board; then a small bolt fixed it solid on top of the tripod. I then get the hive for the swarm on top again, and adjust it to height by the thumb screws in the legs; put the entrance in contact with the cluster, and—there you are. I find it the easiest, surest, and most satisfactory method of catching a swarm I have seen or heard of.

ARTHUR T. HARPER.

Minnedosa, Manitoba, Can., Sept. 3.

Widening the End-bars of Danzenbaker Extracting-frames to Permit the Use of Eight Combs in a Super

I wish to tell of a change I have been making in our Danzenbaker extracting-supers that has added 20 per cent to their efficiency, and much more than that to their value in harvesting a crop of honey. Frames spaced as they are, ten in a hive, while just right for the brood-nest, make too much handling and uncapping for the amount of honey harvested. How to remedy this condition of affairs, and still preserve the good feature of removing the case as a whole, has been my study for some time. The problem has solved itself in this way: Rip out of $\frac{3}{4}$ -inch lumber, pieces scant $\frac{1}{8}$ inch in thickness, and tack these on to one side of both end-pieces of the frames. With this attachment eight pieces of comb will fill a ten-frame super, giving combs for twenty per cent more hives, and giving the bees an equal amount of storage room while the beekeeper handles twenty per cent less of frames. A large saving of time is thus effected just when time is of its greatest value. The device delighted us with results last year.

TROUBLE WITH SMOKE METHOD OF INTRODUCING.

As to the new way of introducing queens by smoking them in, while successful in the early part of the season, during a good honey-flow, later in the season I lost two fine queens. Unless a good honey-flow is on I still prefer the cage system—feeding the colony about a pint of thin syrup for about three nights, *during and after the release of the queen by the bees*; and, I might add, *and not opening the hive for a week*. This rarely fails us at any time of the year.

A "BEE-LINE."

Does not the word "bee-line" refer to the straight course an absconding swarm takes en route to their new home rather than to the course taken by bees while in quest of or returning with their loads of nectar.

Allow me to draw special attention to that very valuable recipe for soft candy given on p. 158, May 1, 1913. It is so simple and inexpensive, with sugar at $4\frac{1}{2}$ cts. per lb., that all can afford to treat any doubtful colonies, whether indoors or out, to a cake of it.

Toronto, Ont.

F. P. CLARE.

Securing Empty Combs for Bait

I have never learned how to get bees to build comb in sections or in the super, when there is no flow of honey, without liberal feeding. They will often occupy the supers in hot weather; and if no honey is coming in they may mutilate the foundation; but build they will not until they have honey to store. My only way of securing empty comb in sections is by letting the bees clean out all partly filled sections as soon as the honey harvest is over. These may be safely and profitably used the next season.

My method of using bait sections is to put one in each corner of the super, for these corners are more likely to be left poorly filled. With a bait section in each corner the super will generally be filled solid.

A SAFE WAY OF INTRODUCING BY THE CAGE PLAN.

I have not demonstrated the smoke method for introducing, and I have not observed to what extent it is necessary to smoke bees to make them good-natured so that the queen may be run in; but the method that has met my needs best is as follows: When the new queen arrives, remove the one to be superseded, by putting her in an introducing-cage made of wire cloth; and after she had been in the cage about 30 minutes, take her out and allow the new Italian, with all her escorts, to enter. Put them at once down between the frames; close up the hive, and the next day lift the cage and a frame of brood, and let two or three workers crawl out among the other bees. If there is no fight you may be sure that you can next release the queen; and you will be

readily convinced of her safety by the way the bees back away from her to make room as she crawls about the comb. Hang the frame back in its place, and the work is done. This is not a new method, but I find it satisfactory for a small beekeeper.

Jamesstown, N. Y.

REV. J. W. WILSON

Burning Out a Smoker to Get Rid of the Creosote

My way of getting rid of the creosote in a smoker is to put a little coal oil in the fire-cup and some more in the cap. A large quantity is not necessary, but there should be enough to soak the creosote well. Let it stand a few minutes, then put a plug of wet paper or hard wood in the draft-hole at the bottom of the fire-cup, and light the oil with a match, letting it burn by laying the smoker down on its side with the cap open. When it has burned long enough, or if it gets to burning too fast, close the cap, and the fire will go out. The wet plug is to keep the fire from coming out at the bottom and charring the bellows-board. After burning out, scrape with a putty-knife or screwdriver.

Georgetown, Del.

GEORGE W. LOUDER

My Method of Folding Sections

I use a table high enough so I can stand up. I take fifty sections, lay them in front of me with a cup of water handy. I slip a section off the pile with the groove down, and place my fore finger in the water, then over the grooves, till the pile is done. Then I turn the pile over and fold them. They are strong and square. .

Oak, Neb.

A. M. DEVITT.

[We have tried a modification of this plan to some extent. We spread a long row of sections on the floor or table, groove side down, and all grooves in line. With a soft marking-brush we wet the backs by drawing the brush along the whole row, one groove at a time.—ED.]

Newspapers to Keep Down Grass and Weeds in Front of the Hives

I have just been reading the way to kill weeds with acid, p. 821, Nov. 15. I have a method which I have been practicing for several years, for keeping weeds from growing in front of the hives. I use old newspapers—many of the big dailies are not good for much else. Early in the spring, before the grass and weeds start, I raise the front end of the hive-stand and insert the end of a newspaper; then smooth out in front, and lay small stones or earth on the corners to keep the wind from blowing them away. This will smother the grass and weeds.

Last spring I located an apiary in an old orchard seeded to alfalfa, and I found the paper very effective in keeping the alfalfa from growing. There should be six or more layers of paper.

Denver, Col., Dec. 17.

W. L. PORTER.

Hives Used 34 Years

On page 26, Jan. 1, I read what was said about old hives retaining their value. I have some hives in use in my bee-yard, called "Simplicity Improved." They were made in 1879. They are made of white pine, and were painted two coats. Two years before I commenced to keep bees I sold the hives for one Dan Royce, and transferred bees into them. I helped to make the hives, so I know what I am talking about. I made hives long ago without paint, of the same kind of material; but they are decayed and gone. I am using the dovetailed for all of my new ones, but I paint them. I have only 76 colonies now.

I have taken GLEANINGS ever since 1882, and believe I have every number up to this. I expect to take it as long as I live.

Cowden, Ill., Jan. 9.

A. W. SPACKLEN.

Uniting in Spring; Rearing Early Drones

I have a colony of bees which has lost its queen within the last few days. On one frame they have a few scattered cells of brood, which is all capped, but no eggs nor uncapped brood. They have started several queen-cells, none of which have brood or eggs.

I should like to know if I can unite this queenless colony with another late swarm of last season, which has a young queen. Both have plenty of honey, and the young queen has a nice lot of brood now. Can I do this successfully at this time of the year?

What is the proper way to handle one frame of drone comb to each hive? I now have the drone comb at the side of the hive. When would you move it to the center? Most of them are full of honey.

Ghent, O., March 30. R. E. MCKISSON

[We think it would be advisable for you to unite this weak colony with one of your stronger ones. To do this, remove the cover from the strong colony and place upon it a sheet of newspaper. Over this set the weak one after having removed the bottom-board. After a few days you will find that the bees will have eaten away the paper and united peacefully. It is best to do this in the evening after the bees have quit flying, in order that you may have all of these in the weak colony.

If it is extra-early drones that you are after, you can accomplish this by moving the drone comb to the center of the brood-nest at almost any time now; and in order to stimulate the bees to the rearing of drones, and to get the queen to lay in the comb, it would be a good plan to mutilate the cappings of the sealed honey. However, we doubt the advisability of trying to produce drones ahead of the time when queen-rearing can be successfully carried on. It would be better to wait until about fruit-bloom time before making such a manipulation.—ED.]

Swarm Control and Increase

I have five hives of bees, and am in business so that I cannot be at home except Sundays. I should like to do something to keep them from swarming, and at the same time increase them. They are in frame hives, but the combs are not straight enough to remove without damage. My idea is to put a body with full sheets of foundation under each colony, with a queen-excluder between the two bodies to keep the queen in the upper body. When the bees start work below, remove the upper body with the queen to a new stand and either introduce a queen to the colony on the old stand or put in a one-frame nucleus with queen. Then the field bees from the old hive will return to the new one in the old location. The brood hatching in the old hive will keep it sufficiently strong. Is my theory all right?

T. H. METTLER

East Millstone, N. J., March 30.

[Your plan for swarm control, and at the same time making increase, is very good, excepting that we think you would have better results by leaving out the queen-excluder, and allowing your old queen simply to go down into the frames of foundation in the lower story and start a brood-nest. Then when you remove the upper story to a new stand you will have brood already there for your new start; and when the division is made you can supply the queen less colony with a queen.—ED.]

Fresh Sawdust from Green Maple for Pollen

Replying to an article relative to artificial pollen, Feb. 15, I will say I have fed flour for 25 years with apparently good results, though I would never put it in the hives. I place it in the yard in shallow boxes—rye, graham, shorts, and bran thoroughly mixed. The coarser particles prevent smothering or

getting the bees covered with it. They work it as readily and as greedily as they would natural pollen or even honey; and I never use honey or any thing to get them started; but when natural pollen is obtainable, and weather such that they can gather it, they desert the artificial.

A number of years ago, when living in the village of Hillsboro, there was a handle factory only about 40 rods from my home yard, where they used nothing but green hard-maple timber. All handles were run through a sandpapering machine, and the dust from this was as fine as flour, and was blown with sawdust into a heap outside. In early spring that dust pile would be alive with bees, gathering it the same as pollen, and carrying great loads of it into their hives day after day. Of course it was slightly sweet, and they utilized it in same manner as they do pollen. They brought in lots of it; but when natural pollen opened up they quit the sawdust.

Union Center, Wis., March 5. ELIAS FOX

Sawdust as a Food for Bees

After reading the articles and editorial comments with reference to bees working on sawdust, pages 154 and 233, the writer feels that some further evidence might convince the editor that perhaps there may be some nutrient (for bees) in sawdust. I will, therefore, make bold to offer a few facts relative thereto.

In connection with our planing-mill we have been operating a small log sawmill, on occasional days since 1905, so that there is some sawdust lying around at all times. Every spring—yes, upon successive warm days any time after New Year, the bees appear in great numbers. We cannot operate this mill on warm days during the months of February and March, or until natural pollen comes in, without killing thousands of them.

From the sawdust of some kinds of timber, notably hickory and maple, the bees carry large loads in their pollen-baskets, and regardless as to whether or not they have pollen in their hives.

We know that bees may not for a long time work on rye chop set out in the open, and perhaps not at all, unless there is some sweet added to get them started; but they will readily find a pile of freshly cut sawdust. However, once started, they will take rye meal in preference.

Littlestown, Pa., March 28. C. F. BUCHER.

Sawdust as a Substitute for Pollen

On page 154, Feb. 15, I notice an item regarding the use of sawdust by the bees as a substitute for pollen. My bees have obtained their first pollen from a nearby sawdust pile for a number of years. The sawdust is freshly sawed, and they seem to seek the fine particles. If a substitute is provided, such as rye flour, they soon leave the sawdust.

In looking over my bees yesterday I found one colony which was afflicted with paralysis. Having used sulphur before in similar cases I used it this time, sprinkling it over the bees and at the entrance. In a short time bees were seen loading their pollen-baskets with the sulphur, and entering a hive near by. They did the same to-day. I think they will find themselves "stung" when they try converting sulphur into bees.

Barkhamsted, Ct., March 17. DELOS O. HART

[This is an interesting report, in that it shows that bees may be deceived. Now, then, if bees were deceived by the sulphur may they not be deceived in like manner and carry in good deal of trash! One beekeeper wrote us that his bees liked ginger! They were carrying in great loads of ground ginger-root that happened to be exposed.—ED.]

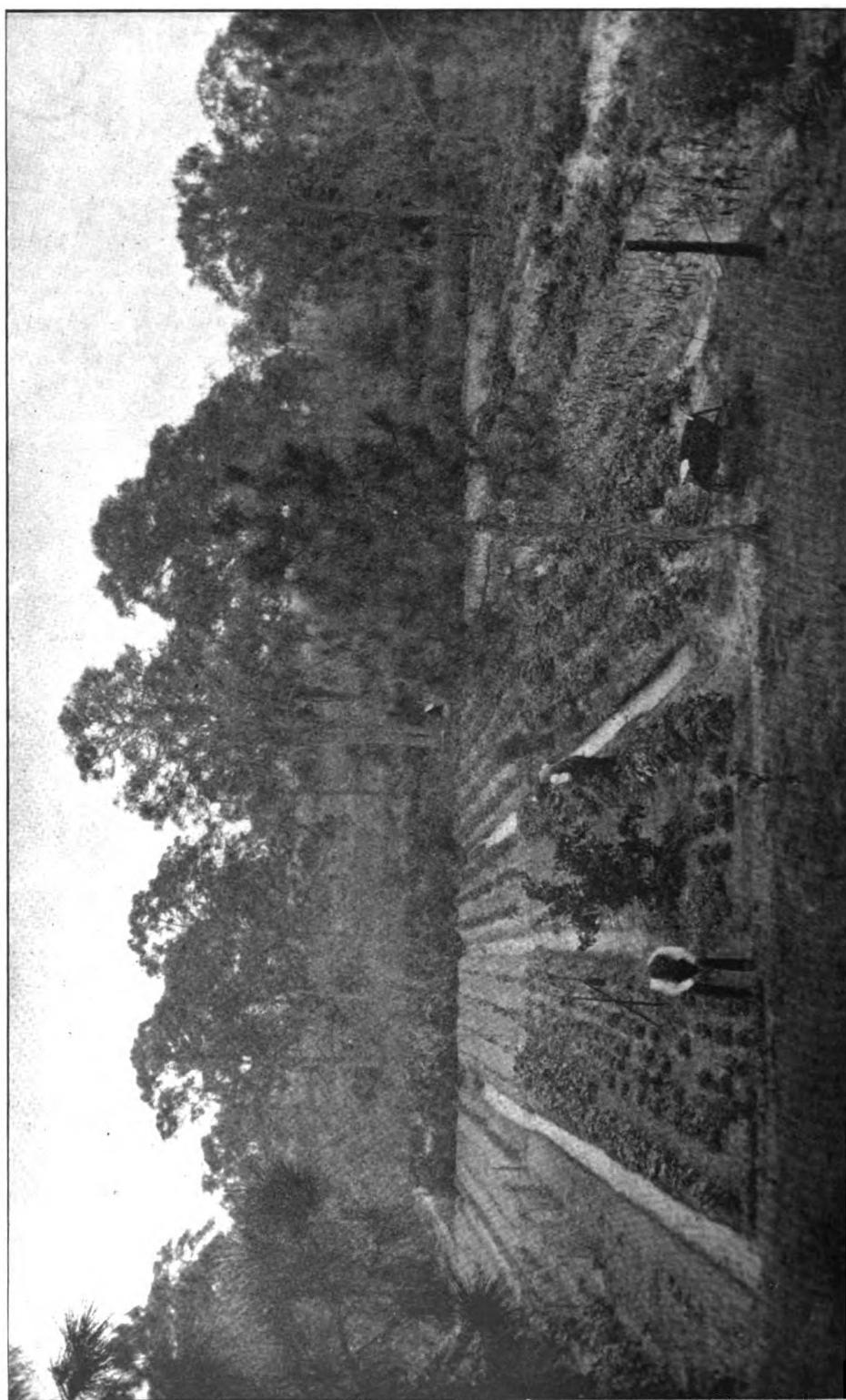


FIG. 1.—A glimpse of our Florida garden taken from the west. A. I. Root is in the foreground, stooping over, preparing some plants to set out, wholly unconscious that his picture and that of his garden was being taken by E. R. from the upper bedroom window of the house shown in the other view. His man Wesley, with the hoe, is shown in the middle foreground.

HIGH-PRESSURE GARDENING

A. I. Root

OUR FLORIDA GARDEN, ETC., MARCH 2, 1914.

I am glad to give you some glimpses of the best garden we have ever had in Florida, and, in some respects, the best garden we ever had anywhere; and I have always had a garden of some kind since my good mother (bless her memory) taught me to love gardens *seventy years ago*. I have only recently learned that here in sandy Florida we need not only tile drains but surface drains also; and in pictures 1 and 2 you will notice between every four or five rows of stuff there are deep wide paths that not only serve as walks, but that carry off the water when it rains so there is a surplus. Now, this isn't all. At the lower right-hand corner of No. 2 you see a bed of potatoes. Well, Wesley has been gradually "learning the trade" of turning under large amounts of green stuff; and when the bed was made, there was a swamp of gallberry, grapevines, blackberry, Bermuda grass, etc., about as high as one's head; and when I asked if he could get it *all* under he replied:

"Yes, sir; if you say so, *under it goes*;" and in due time it was all out of sight, and

the mellow soil raked over smooth, rounding up higher in the middle of the bed. Perhaps I should add this "thicket" had been a favorite spot for the chickens for several years, especially when the sun was hot, as it was cool and shady, and no hawk could follow them into this shady retreat. I confess that when the potatoes were planted it was with some misgivings; but when they came up so promptly and were "knee high," in about four weeks it was one of my "happy surprises." On the left upper corner of cut No. 3 you will see some potatoes at about six weeks from planting. They are the Red Triumphs, and there are already potatoes as big as goose egg, bursting up under those great perfect leaves as large as one's hand. This winter, the fact we have had all the rain one could ask for, is perhaps one reason *why* burying so much green trash has been such a success.*

Let me digress right here to announce another of my "big discoveries." We get

* After Ernest took the three hills of potatoes, I dug one of the best hills and got 16 fair-sized potatoes, some quite large, and the hill was green and still growing.



FIG. 2.—A glimpse of our Florida garden taken from the east. A. I. R. was anxious to get this picture looking toward the west because it shows his dasheen and his potato-vines a little better. He is seen on the left among his dasheen on the left. The potatoes are shown on the right. Speaking about the "hoe," A. I. would rather "play" with that than any gun, camera, fishing-rod, or ball-bat or any thing else in the world. He is never happier than when in his garden "playing" with his plants.—E. R. R.

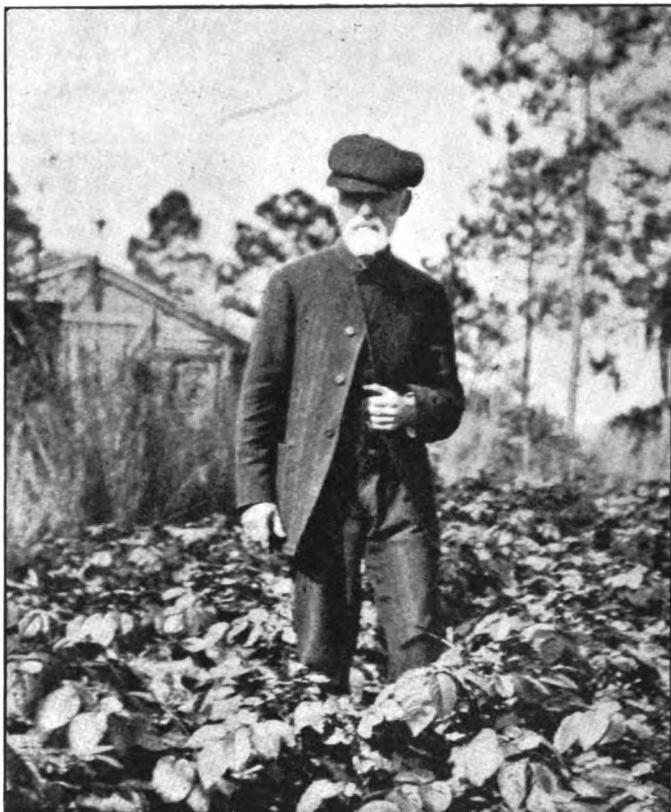


FIG 3.—How the potatoes grow down in Florida, where Colorado bugs, flea beetles, etc., are (as yet) unknown.

our new potatoes by "grabbling" them wherever we see the ground puffed up; and in this soil they are smooth, round, and perfect in shape. Now, in preparing new potatoes (that are not perfectly ripe) for the table they are usually scraped instead of being pared; and when I saw Mrs. Root scraping a panful I bethought me of the stiff palmetto brushes with which we brush the dasheen tubers before they go into the oven, and, sure enough, the brush removed the potato skins in a twinkling. As we have so much dasheen brushing to get them ready for the mail, I bought a variety of brushes: and a big stiff brush made for cleaning horses proved the best implement. Now, when Mrs. Root asks for potatoes for dinner I get the potatoes and Wesley washes and brushes them, and you can't imagine how handsome they look when they are ready for Mrs. Root.

I get them out of the ground first, because I love to do it, and because I think I can find them and disturb the still growing vine less than any one else. Why, it's like catch-

ing big fish to catch my finger under a whopper and turn him out, so handsome and perfect in shape.

Cut No. 3 shows a spot where I get them. Cut No. 4 shows a hill of dasheens that came from a single small tuber planted in January, 1913. The chickens got at it last summer; and when I got here it had made very little growth. It has now "stooled out," as you see, so there must be, I think, toward a peck of tubers. I gave it in December about a pint of fertilizer and cotton-seed meal, and it soon responded to the treatment. Besides the tubers there are enough green stalks and leaves to make several delicious meals.

Cut No. 5 shows what Ernest calls our "waterfall." The water above is fresh, while that below the fall is salt; and as this rises and falls with the tide, the waterfall—or rath-

er, perhaps, the "rapids"—varies in depth from perhaps three feet to nothing at all, as the tide sometimes goes so high as to cover and obliterate the fall entirely. There is, however, almost always enough fall to make it what I call our "babbling brook," and I always enjoy its music. It is a favorite spot for the ducks; and if I don't get aroused promptly at 8:30 A.M. to let them out of their yard they get up a concert of protest that is louder than many "waterfalls." The alligator cave is in the rocks just above the fall, and visitors almost always inquire about it, and I have to tell the story over again about the alligator and the ducks. He has never come back since Wesley made him give up his unequal and unfair fight with the courageous hen that was the mother of the ducks.

The transparent water above and below the fall is very prettily embellished with pearly-white shells, and sometimes a duck's egg adds to the beauty of the bed of the rippling stream. It just now occurs to me that we ought to have a book where the

readers of GLEANINGS who make us a call can put down their names, residence, etc. It will need a fair-sized book, for they come not only from all over the United States, but I might *almost* say from Europe, Asia, and Africa.

MOTH-BALL AND CREOSOTE FOR SQUASH-BIGS AND MITES.

I tried the moth-ball remedy for cucumbers and squashes, and it worked to a certain extent; but I did not get to try it till the vines were pretty badly mutilated and squashes were full of worms, some of them. The worms hatch inside of the squashes, melons, and cucumbers in this locality, different from what they do in Illinois and Iowa, where I formerly lived. I had some summer squashes, and quite a good many cucumbers that did better than my neighbors' in that line this summer.

In your poultry talks I have never known you to mention creosote (a by-product of coal, I think it is) as a good thing to get rid of mites. I generally have to apply it about twice through the summer to keep pretty well rid of them. I use two or three gallons with a brush, and go over roosts, nest-boxes, and walls about as high as I can reach, and generally spill it around on the ground under the roosts, and it answers for some time to come. Care should be taken about using it in very close houses, as it might smother young chicks, especially if the weather is very warm. I lost several young chicks at one time by creosoting a rather tight barrel. They went into it at night, and several of them smothered from the gas thrown off by creosote. It can be bought here by the barrel at 15 cts. per gallon, and perhaps a little higher in smaller quantities.

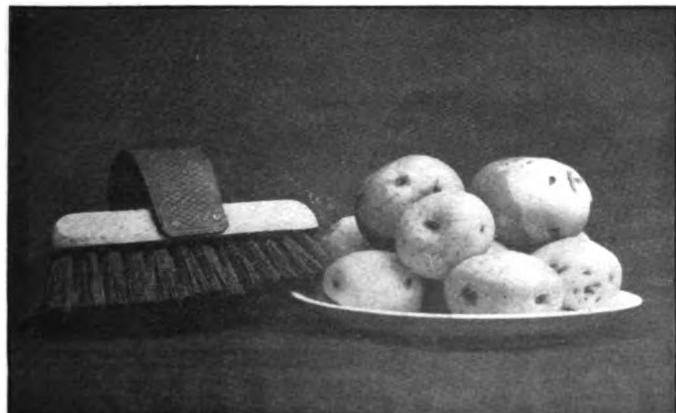
The Semet Solvay Co., of Ensley, Ala., manufactures it, and will ship by the barrel or in less quantities, I think.

GUY N. VEDDER.

Birmingham, Ala., Oct. 15.

"HELIANTI," THE NEW "WONDERPLANT."

Almost 70 years ago my mother wanted a flower-bed, and father fixed one up with some very rich dirt, and seeds were planted. In due time a very thrifty plant appeared;



The potatoes that grew in six weeks, and the brush that brushed the skins off, instead of paring or scraping. They are the Red Triumph, and one potato is shown only partly "pealed."

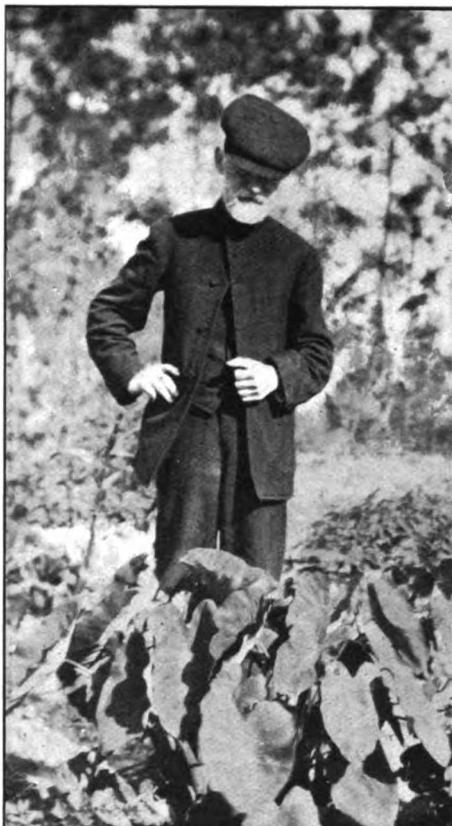


FIG. 4.—A clump or hill of dasheen where a rough small tuber was planted over a year ago. A. I. Root admiring his dasheens.

and while father declared it was a weed, mother insisted it was one of her new acquisitions. Along in the fall it did become a wonderful mass of bloom, and this bloom looked exactly like little sunflowers. Father still kept joking about her great weed until near frost time, when somebody asked why the ground was heaving up about the plant as if it concealed a great hill of potatoes or some similar tuber: and then there was a big laugh all around about mother's choice "posey." It was an *artichoke* that did wonders under the stimulus of very rich soil and anxious care. What brings the matter up now? Why, a



FIG. 5.—A glimpse of the drainage canal where the ducks play, at the foot of our garden.

circular with a picture that recalled to memory mothers' flower, and with the picture one of an exaggerated hill of artichokes. Here is some of the reading matter:

BIG MONEY GROWING HELIANTHUS.

Helianti, the new "Wonder Plant," the great combination vegetable. As a money-maker it's a wonder. Unlike ginseng, you don't have to wait five years for a crop. A very showy flower and a new summer and winter vegetable of phenomenal merit. This new plant produces showy golden-yellow flowers like cosmos blossoms, in endless profusion, and immense quantities of fleshy tubers, somewhat after the style of sweet potatoes, that are splendid eating fall, winter, and spring. It stands both heat and cold, and will thrive anywhere in any soil or climate. What would you think of hay, potatoes, asparagus, cauliflower, oyster-plant, mushrooms, squash, and beautiful flowers, all on one plant?

The Postoffice Department and the Department of Agriculture should get after Burgess Seed and Plant Co., Allegan, Mich., for advertising an old plant under a new name, as something new. The artichoke is really one of the sunflower (*Helianthus*) family.

"COCOE," THE DASHEEN OF JAMAICA.

Dear Mr. Root:—I have been very much interested in your articles in GLEANINGS about the dasheen. Ever since you first mentioned it I have been wondering if it is the cocoe we get here. It is grown largely here, and the tuber is one of the principal foods. The "head," or "corms," as you call them, are given to pigs, and are used for planting cut up in bits. The young shoots or "buds," as we call them, are used along with "callus" (a kind of spinach), and pumpkin "buds," in making a soup called "pepper pot." Of course, there is a lot of pepper put in, and other things.

There are six different kinds of cocoes grown here. These are black and white Commander; black and white Burban; Minty and Baddo. The tubers of the first five are eaten, and the first two are the best. The last named, the "head," or corm, is also eaten; but, say, I like it.

The general way of planting here is, after the land is cleared of bush, holes are dug about one foot by $1\frac{1}{2}$, and 6 inches deep, and one "bit" (cut from the "head") put in and covered. They are generally planted on the side of a hill, and thrive best in gravelly soil. They mature at a year from planting, but can be eaten before, anywhere from eight months. The leaves of the dasheen in the pictures in GLEANINGS are just like the cocoe leaves. The cocoe grows to a good height, according to the soil. No manure is given here, but the land is mulched before planting. After it is planted it is just kept free of weeds—that's all.

I am sending you a tuber of the Black Commander under separate cover, as a sample. I hope it will arrive in good order, and that you will like it. This is only a medium-sized tuber. Some are twice this size.

We are having cool weather here at present, which I think is keeping back the bees from going into the supers and building up generally. Of course I am speaking for this locality only.

HERBERT A. KOLKE
Alma, Brown's Town, Jamaica, B. W. I., Feb. 28.

My good friend, we are exceedingly obliged to you for the above, and for the cocoe tuber. I cut off the lower half and baked it as we do the dasheen; and, although it has a slightly different flavor, it is, I judge, fully as good. The top part with the bud, I have planted near the South African "Amadumbe," and if this continues I shall soon have dasheen from all over the world.

HEALTH NOTES

OVEREATING; RHEUMATISM, SORE THROAT, ETC.

We clip the following from Terry's Health Hints in *The Practical Farmer* of March 14:

From Victor, N. Y.: "I have rheumatism, swelled and painful finger joints. They are getting worse. Doctors say they can not cure me. Please advise diet." No drugs or medicines will cure your fingers. But there is every probability that nature can relieve you, so you can get along nicely, if you will live rightly in every way. Life will be a burden soon if you don't. Nothing else is so important as to cure yourself right now. Best foods are fruits, unbolted grains, butter, vegetables, and a small amount of properly baked beans or nuts when craved. Don't forget baked potatoes, and to drink two or three quarts of pure rain water per day.

HIGH COST OF LIVING CUT DOWN TWO-THIRDS.

How would you like to live where it gets 50 degrees or more below zero! How would you like to live where the first freight in the spring gets in about July 4th, by boat, and the last one in the fall early in October—nine months without the possibility of getting any thing by freight, and perhaps only letters to be had by mail. This is the condition reported by one of our readers, Isaac Dutton, Fairbanks, Alaska. He says: "When I was in town last 4th of July I got 21 copies of *The Practical Farmer* at once, which had come in by boat the night before." Think of what it must be during the long, cold winters not to be sure of having any papers or magazines from the outside world to read, unless they are laid in during July, August, and September. It requires close figuring to order things ahead for the year so as not to run out during the nine months when they are shut in by themselves. Perhaps friend Dutton will be getting this paper to read next July. We have a valuable report about cost of his living from this reader. He says: "I have bought seven of your health books for myself and neighbors. I am gradually getting around to your simple way of living. In the past I used to lay in nearly \$400 worth of food supplies for the winter. Two years ago I laid in \$350 worth. One year ago I reduced the amount to \$250 worth. This last fall I put up a little less than \$100 worth of food supplies, and I have an abundance; am feeling finely. I am 55, but actually feel better than I did when I was 35. Am growing young! I have made up my mind that it is foolish to grow old. I am eating only the simplest foods which bring the most perfect health." Think of such a progressive letter from far-off cold Alaska. Verily, Americans lead the world.

There you have it, friends, with a vengeance. "The high cost of living" is not only a great waste of money (in fact, that is only a trifling part of it, comparatively), but our pains and aches, sickness, and death are the direct result of indulging in food needlessly high-priced, and too much of it. This good man away off in the frigid North finds out by actual experiment that \$100 worth of food actually gives better health than the \$400 he had been spending.

For some time I have been working (and praying) to find out how much an excess of food has to do with health, colds, grip. neuralgia, etc., for instance. Well, I have

not had a bit of "cold" all winter (although Florida has had the most cold days on record), and I have been boasting I have not had "sore throat and earache" for several years. Along in March some friends from the North came; and, naturally, we had more of a variety to let our friends see the nice things to be had here; and, sure enough, the old sore throat came back. My health was so good, however, I soon rallied, and in about ten days was mostly over it. One day I was ravenously hungry. It seemed as if I could not "get satisfied," and, somewhat as an experiment, I ate "all I wanted." I felt a little uneasy after dinner, and decided I must get right at some hard work, and soon forgot all about the matter. In the evening I said, "Sue, my throat is stinging and swelling awfully. It really seems as if I must have this thing all over again. I have been careful to wear my overshoes when on damp ground, and I do not see what I could have done to bring it back." I went to bed with a hot soapstone at my feet and well bundled up, and this morning I am pretty near over it; but I am satisfied the "big dinner" caused it all. Suppose I had also eaten a "big supper," as the most of you do, and I almost always (after eating my two apples and half of a grapefruit) feel hungry enough for a "good supper;" where would my sore throat and earache have been? It takes self-control, I know, as well as you do; but elderly people who have given up hard toil mostly must learn self-control or take the consequences. Just try not eating any thing at all after 4:30 or 5 P. M., and see if Terry is not exactly right.

THE MODERN SKIRTS; WOMEN'S DRESS, ETC.

We have had no end of criticism through the press about the way women, and especially young women, see fit to clothe themselves in these latter days. I have once or twice suggested that the new fashion favors health, because it admits air and light, and is less burdensome on the wearer than the fashion heretofore has been. Of course I would not for a moment favor any thing that restricts rapid walking or young girls from running. At the same time, I would not for a moment encourage any thing tending toward indecent exposure. It seems so good an authority as the *Youth's Companion* has seen fit to enumerate some of its advantages. See the following:

Is there not perhaps something to be said in defense of the light, close-fitting modern skirt? Why view it with hostile eyes merely because it is "some-

thing different"? Why judge it by the form it takes in its most indiscreet and extreme manifestations?

Compare it with the skirts of earlier fashions—the hoop-skirt—the elaborate draperies that accompanied the bustle, the full skirt that was stiffened into enormous size by crinoline and horsehair linings, the plaited skirt with yards and yards of excess material, the trailing skirt that gathered dust and filth from the street. In any such comparison the modern skirt is a triumph of common sense, comfort, simplicity, neatness, and health.

By "the modern skirt" *The Companion* does not mean the dangerous and ridiculous "hobble" skirt, or the skirt that has to be slit at the side to enable the wearer to walk; but the skirt that clears the ground by two or three inches, and contains only a half or a third as much material as its predecessors.

The new fashion does not distort the figure. For the first time in many years, women wear no absurd hump in any part of their toilet—no bustle, no puffed sleeves, no ruff, no pompadour. With the lighter skirt has come also the one-piece dress, which allows the weight to fall from the shoulders. That is a great gain.

The whole tendency of the change is away from the distorted and the artificial, toward the freedom, simplicity, and beauty of the Greek costume—a tendency not imitative but adaptive. As such, the change has much to commend it. It is in the abuse of the new fashions, not in the use of them, that immodesty lies.

The above reminds me that nearly all my life I have been protesting against the absurd and silly fashions for women's dress. When I was in my teens I sometimes quarreled with my sisters, and with girls with whom I was intimately acquainted, because of tight lacing simply because it was "the fashion." Then when bustles came in vogue, where they could not afford a manufactured bustle some of the girls wore folded newspapers. Then when hoop-skirts came in, I scolded more, especially when they were so large that a woman could not get through an ordinary doorway without tilting them up. The fashion of "tight lacing" I have objected to all my life; and I had almost forgotten it until the *Youth's Companion* mentioned it, that tight lacing seemed to be finally out of fashion. God grant that it has gone for ever. I believe the best authorities in regard to the care of these bodies of ours say that nothing should be tight enough to impede free circulation; and right along this line for the best development of health there must be abundant ventilation. I have had considerable to say recently in regard to ventilating the feet. Whenever your feet get hot and sweaty, it is nature's protest, and a demand for more air; and so with other parts of the body. Now, if the modern style of women's dress is going to give them something sensible in that direction, and is going to give the mothers of our land better bodies, and enable them to give the world healthier children, shall we not thank God and be a little slower about criticising and finding fault?

Last, but by no means least, the modern

skirts are a saving in cloth, and in that way it is a saving in expense. I think Mrs. Root said that some of the former fashions required three times the amount of cloth that is used now. And besides the money saved, there is less weight to be carried about. Not very long ago I spoke of getting rid, not only of every pound but of every ounce that can be readily spared in going about your work, especially in mild or hot weather. Old people especially will find their strength will hold out ever so much better or longer when they get rid of useless clothing or useless weight in the clothing. Select something that protects from the weather, and which weighs just as little as possible. In fact, I would not mind paying a pretty good price for something that gives protection with the least possible avoirdupois weight to be carried about. Notice how farmers get rid of surplus garments when working in the harvest-field. Of course, we do not all work in the field in that way. But all of us should have some muscular exercise every day of our lives, and all useless clothing should be laid aside, and, so far as possible, let us have this exercise out in the sun and open air, with just as little clothing as comfort and a reasonable degree of decency will admit.

"Running a Bill."

It seems economical, but really it is not. You feel that because you are not parting with cash at the moment, you are temporarily saving money; and you are usually sure that when the bill comes in you will be better off financially than you are at the moment. Of course this idea is delusive; you find on the first of the next month that the bills are larger and the accumulated fund less than you had expected.

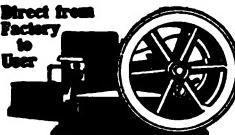
Running a bill is subtly demoralizing. When you open a new account, you are scrupulous to pay the bill very soon after it is rendered; you wish to impress your creditor with the fact that you are an uncommonly desirable patron. After a while you feel that he has learned this fact, and you let him wait for his check while you impress a new set of creditors with your punctuality—and solvency. So you keep putting off and putting off the creditors who are "old friends" until finally it becomes a scramble to prevent their sending in an account headed by that discouraging item, "Bill rendered." When you sink into the "bill rendered" class, you have entered the second stage of indebtedness. The third is marked by the receipt of dunning letters, the fourth by personal visits from collectors, the fifth by menacing communications from lawyers.

It is difficult for men and women who have the habit of "charging" every thing to put aside money for investment. They have adopted a costly way of living. The ability to purchase what you will, although your pockets are empty, is an expensive luxury. The shops that permit charge accounts are the shops that ask high prices; a charge account usually means that you pay from five to ten per cent more for a thing than its cash value.

If you adopt the pay-as-you-go principle, you will considerably reduce your own high cost of living.—*The Youth's Companion*.

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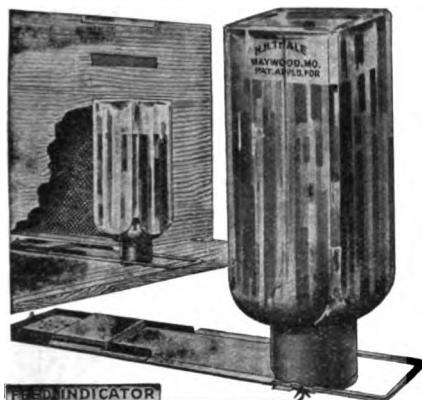


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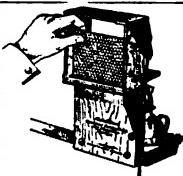


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LAMBERT PHARMACAL COMPANY, St. Louis, Mo.



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Put up your sections in half of the former time. Not an untried novelty. The old-style machine is used by hundreds of Western comb-honey specialists; the new machine is better and cheaper. By parcel post anywhere in the U. S., \$8.00. Satisfaction guaranteed or your money back. Write to-day for illustrated circular to

The Colorado Honey Producers' Association, 1440 Market Street, Denver, Colorado

QUEENS FROM CARAWAY'S PRIZE-WINNING STOCK

THREE-BANDED ITALIANS READY TO MAIL NOW

Italians	After April 15				After May 10				After June 10		
	1	6	12	100	1	6	12	100	1	6	12
Untested..	\$1.00		10.00	75.00	\$.90	\$4.50	9.00	70.00	\$.70	\$4.00	\$7.75
Tested. ..	1.25	6.00	12.00		1.00	5.00	10.00				

Select tested, April 1 till Nov. 1, \$2.00 each. Breeders, \$5.00 each. Bees by the pound, after May 10, 1 lb. for \$2.00; 10 lbs., \$18.00; 100 lbs., \$170.00. Add to these the price of queen or queens; safe arrival guaranteed within five days' journey of Mathis.

My three-banded Italians captured first prize again at Dallas State Fair and the Cotton Palace Fair at Waco. This speaks for itself. None better.

My Stock.—I secured the best stock obtainable; and when you pay more than my prices you are paying that much extra. I sell nothing but good queens. None better. I positively guarantee my queens to please. No foul brood or other diseases.

B. M. CARAWAY, MATHIS, TEXAS

References: Mathis First State Bank and The A. I. Root Company

Queens and Bees

We are now booking orders for our celebrated Leather-colored and Golden Italian Queens. Bees in $\frac{1}{2}$, 1, and 2 lb. packages. Nuclei in 1, 2, 3, or 5 frame, either on Danz. or Hoffman frames. Full colonies in 8 or 10 frame L. hives or Danz. 10-frame hives. Write at once for special card of prices, and book your order with us early.

Letter of endorsement to us from The A. I. Root Co.:

Medina, Ohio, Feb. 6, 1914.

The Penn Co., Penn, Miss.:

Repying to yours of Feb. 3, we would state that we have bought a large number of queens of you. We have found them uniformly marked, and of a good stock; in fact, they are first-class in every respect. Another thing, we have always found that you make prompt deliveries, or give us notice promptly when such delivered could not be made.

THE A. I. ROOT CO.,
by E. R. Root, Vice-president.

Get our prices at once. . . . The largest queen and bee yards in the South.

The Penn Co., Penn, Mississippi

QUEENS!

Quirin's Improved Superior Italian Bees and Queens. . . . They are Northern Bred and are Hardy. . . . Over 20 Years a Breeder.

	Before July 1st			After July 1st		
	1	6	12	1	6	12
Select untested . . .	1.00	5.00	9.00	.75	4.00	7.00
Tested	1.50	8.00	15.00	1.00	5.00	9.00
Select tested	2.00	10.00	18.00	1.50	8.00	15.00
2-comb nuclei	2.50	14.00	26.00	2.25	12.00	22.00
3-comb nuclei	3.50	20.00	35.00	3.25	18.00	31.00
8-frame colony	6.00	30.00		5.00	25.00	
10-frame colony	7.50	38.00		6.50	32.00	
1-8 lb. pkg. bees	1.50	7.00		1.00	5.00	
1-lb. pkg. bees	2.00	10.00		1.50	8.00	

BREEDERS—the cream selected from our entire stock of outyards; nothing better. These breeders \$5.00 each.

Can furnish bees on Danzenbaker and L. or Hoffman frames. Do not write for lower prices even if you want 1000 queens or 100 colonies. Price is already low, considering the quality of our stock and prompt service.

Above price on bees by pound, nuclei, and colonies, does not include queen. You are to select such queen as you wish with the bees, and add the price.

No bees by pound sent out till first of June. Also nuclei and colonies, if wanted before June 1st, add 25 per cent to price in table.

Breeders, selected tested, and tested queens can be sent out as early as weather will permit.

Send for testimonials. Orders booked now.

H. G. Quirin - the - Queen - Breeder
BELLEVUE, OHIO

GOLDEN ITALIAN Queens

Raised from straight five-band mothers, mated with select golden drones, $\frac{3}{4}$ miles from three-band apary. These queens are large, vigorous, and prolific; the bees gentle and hustlers, and are noted throughout the U. S. as a disease-resisting strain. Purity of mating, safe arrival, and satisfaction guaranteed.

QUEENS	May 1st to June 1st			June 1st to July 1st			July 1st to Nov. 1st		
	1	6	12	1	6	12	1	6	12
Untested	\$ 1.25	\$ 6.50	\$11.50	\$ 1.00	\$ 5.00	\$ 9.00	\$.75	\$ 4.00	\$ 7.50
Select Untested	1.50	7.50	15.50	1.25	6.50	13.00	1.00	5.00	9.00
Tested	9.00	10.50	18.50	1.75	9.00	17.00	1.50	8.00	15.00
Select Tested	2.75	15.00	27.00	2.50	15.50	25.00	2.00	10.00	18.00

Breeders, \$5.00 to \$10.00.

Queens for export will be carefully packed in long-distance cages, but safe arrival is not guaranteed.

BEN G. DAVIS, SPRING HILL, TENNESSEE

W. H. LAWS

is prepared to take care of all your queen orders the coming season.

Twenty-six years of careful breeding places Laws' queens above the usual standard.

My bees, in my own and in the hands of others, have taken first premiums at the leading fairs all over the United States; and, in the hands of single individuals, have gathered over a car of honey in one season.

Tested queens ready now. Each, \$1; 12 for \$10.

Untested, after April 15, breeding queens, about fifty of the finest ready at any time; each, \$5.00.

W. H. LAWS, Beeville, Bee Co., Texas

Taylor's 1914 Three - banded ITALIAN QUEENS

Now ready to mail: 26 years' careful breeding for the best honey-gatherers. None better. Prolific, and honey-getters. We fill all orders promptly. Untested, \$1.00 each, or \$10 a dozen. Tested, \$1.25 each, or \$12.00 a dozen. Select tested, \$1.50 each or \$15.00 a dozen. Breeders, the best, \$5.00 each. Send all orders to

J. W. TAYLOR & SON, Beeville, Bee Co., Texas

SAVE YOUR QUEENLESS COLONIES

Introduce a vigorous tested queen. We can supply them by RETURN MAIL for \$1.00 each.

UNTESTED queens, ready April 15, single queen, \$1.00; \$9.00 per dozen. No disease. Satisfaction guaranteed.

J. W. K. SHAW & CO., LOREAUVILLE, LOUISIANA

DOOLITTLE & CLARK

are booking orders for choice Italian Breeding Queens, ready to be sent out about May 1. Send for circular.

MARIETTA, Onondaga Co., New York

Marchant's Island Bred Queens

Bred from selected mothers, and mated to isolated drones of a different strain. My aim is quality and not quantity. So if you want any of these choice purely mated three-banded Italian queens order now or you may not get them as I am going to rear only a limited number. No disease, and your money back if not satisfied. The A. I. Root Co. use my queens, which is proof of their quality.

No need to write for lower prices.

Reference, The American Exchange Bank of this city.

Prices—Untested, single, \$1.50; 6 for \$6.00; 12 for \$10.00; in lots of 25 or more, 75 cts. each. Select tested, \$8.00. Breeders, \$5.00 and \$10.00.

A. B. Marchant, . . Apalachicola, Florida

Extra Select Tested Queens \$2.50 Each

Will make good breeders. Guaranteed to give satisfaction. Untested queens, 75 cts. each; \$7.50 per dozen. Tested, \$1.50. Choice breeders, \$5.00. Nuclei, \$1.25 per frame, good supply of bees. Half pound bees with queen, \$2.00. Bees, \$1.50 per lb., no queen; full weight. Full colony in eight-frame hive with queen, \$6.50; in ten-frame, \$7.50. Best mail and express service in the South. Only 18 hours to St. Louis, Mo.

THE STOVER APIARIES, MAYHEW, MISSISSIPPI



BUY CARNIOLANS IN CARNIOLA

Pure Carniolan Alpine bees. Write in English for booklet and Price list. . . Awarded 60 honors.

**JOHANN STRGAR, . . Wittnach
P. O. Wecheler Felstritz, Upper
Carniola (Kraint), Austria**

Archdekin's FINE ITALIAN QUEENS

THREE BANDED

Bred for Persistent Profitable Production of Honey. Prolific, hardy, gentle. The bee for pleasure or profit. One customer says, "Your queen soon had her ten frames running over with bees that are hustlers." Cells built in strong two-story colonies, and mated by best-known methods. No disease. Satisfaction guaranteed. Orders filled promptly. Ready May 20. Untested, \$1.00 each; six for \$6.50; dozen, \$10.00. Select tested, \$2.00 each.

J. F. Archdekin, Rt. 7, St. Joseph, Mo.

Classified Advertisements

Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the Classified Columns or we will not be responsible for errors.

HONEY AND WAX FOR SALE

FOR SALE.—Finest quality buckwheat honey in cans and kegs. Clover honey all sold.
C. J. BALDRIDGE, Kendalia, N. Y.

FOR SALE.—No. 1 white comb, \$3.00 per case; fancy, \$3.25; 24 Danz. sections to case, six cases to carrier.
WILEY A. LATSHAW, Carlisle, Ind.

FOR SALE.—3000 lbs. of fine extracted honey in 60-lb. cans, 9 cts. per lb. GEORGE RAUCH, Orange Mountain Bee Farm, Guttenberg, N. J.

No. 1 aster honey, delicious flavor; fine for table use. In 60-lb. cans, 7 cts., f. o. b. Brooksville.
H. C. LEE, Brooksville, Ky.

HONEY AND WAX WANTED

WANTED.—Comb, extracted honey, and beeswax.
R. A. BURNETT & CO., 173 So. Water St., Chicago.

WANTED.—Comb honey and beeswax. State what you have and price. J. E. HARRIS, Morristown, Tenn.

WANTED.—Honey, extracted and comb. Will buy or handle on commission. Beeswax—will pay highest price. HILDEBETH & SEGELENK, New York, N. Y.

WANTED.—Best grade white-clover and buckwheat extracted honey in cans or small barrels; the square five-gallon can, two cans to the case, preferred. Send sample, and quote best cash price delivered f. o. b. Medina, also f. o. b. Chicago, Ill. Can use quite a large quantity of both grades.

THE A. I. ROOT CO., Medina, Ohio.

FOR SALE

FOR SALE.—A full line of Root's goods at Root's prices.
A. L. HEALY, Mayaguez, Porto Rico.

FOR SALE.—Full line of Root's goods at factory prices.
E. M. DUNKEL, Osceola Mills, Pa.

FOR SALE.—Full line of Root's goods at factory prices.
ELMER W. PALMER, Catskill, N. Y.

SIXTY-DAY SEED OATS. Heavy yielders. Very early, including a clover catch. Recleaned. Sacks free. 90c. 10 bu. or over, 75c. GAIL T. ABBOTT, Rt. 3, Medina, O.

New crop of extra-fine quality alfalfa seed, \$6.50 per bushel; sacks, 25 cts. extra; also some sweet-clover seed.
R. L. SNODGRASS, Augusta, Kan.

FOR SALE.—Better hives for less money. Beekeepers' supplies and standard-bred Italian bees. Write for catalog.
A. E. BURDICK, Sunnyside, Wash.

FOR SALE.—Root's goods at factory prices. Fresh stock and prompt accurate service. Let's get acquainted.
L. W. CROVATT, box 134, Savannah, Ga.

"Root" bee supplies, "American" honey-cans, and "Weed Process" foundation exchanged for beeswax and honey. Cash prices on request.
SUPERIOR HONEY CO., Ogden, Utah.
(Branch at Idaho Falls, Idaho.)

FOR SALE.—Empty second-hand cans, two cans to the case; good as new; 25 cts. per case.
C. H. W. WEBER & CO., Cincinnati, Ohio.

Beekeepers, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap.
WHITE MFG. CO., Greenville, Texas.

We are among the largest growers of alsike clover in this country, and offer good clean seed. Bushel, \$1.00; half bushel, \$5.75; peck, \$3.00.
C. J. BALDRIDGE, Homestead Farm, Kendalia, N. Y.

The A. I. Root Co.'s Canadian House, Dadant foundation, bees, queens, honey, wax, poultry supplies, seeds. Write for a catalog. THE CHAS. E. HOPPER CO., 185 Wright Ave., Toronto, Ontario.

FOR SALE.—Smokers and feeders slightly damaged by flood, at one-half catalog price. Bargains. Mention what you want and enclose remittance. We reserve right to substitute.
E. W. PEIRCE, Zanesville, Ohio.

FOR SALE.—22 1 1/2-story second-hand Danz. hives, brood-frames, and section-holders, practically good as new; \$1.50 each, 1/2 of list price; 5 one-story, \$1.00. Bees were transferred; combs and frames boiled to melt wax. No disease.
A. MOTTAZ, Utica, Ill.

WANTS AND EXCHANGES

WANTED.—To buy bees.

B. F. HOWARD, Tyre, Mich.

WANTED.—Bees for cash. Give particulars and price. E. MACK, 3818 N. Nagle Ave., Chicago, Ill.

WANTED.—To buy a yard of bees in Eastern New York. O'CONNELL, 571 39th St., Brooklyn, N. Y.

WANTED.—To buy one or more apiaries in a good location.
A. CARDEN, Constance, Ky.

WANTED.—Bees in lots of 25 to 300 colonies, preferably within 250 miles of Detroit, Mich.
A. W. SMITH, Birmingham, Mich.

To SELL OR WORK ON SHARES.—Small bee-farm in good shape for increase. Write for particulars.
W. T. KEESE, Rt. 3, Cardington, Ohio.

WANTED.—To sell untested queens from my superior clover-strain Italians in quantities.
I. F. MILLER, Brookville, Pa.

Will exchange three 50-egg cycle hatchers, like new, for bees.
G. SOHREIDER, Queens Blv., Elmhurst, N. Y.

Fine Buff Orpington hens, exhibition birds, bred from Madison Square winners, trap-nested, finest quality. Will exchange for Italian bees.
S. E. WASSON, Rome, Ga.

WANTED.—Best offer on thirty 12-section safety cases of No. 1 to fancy clover-heartase honey placed in our hands for disposal. Color light as average clover.
E. W. PEIRCE, Zanesville, Ohio.

TO EXCHANGE.—Ping-pong and cabinet; 4 x 7 studio camera with stand; fine Voigtländer studio lens; value of outfit with above lens, \$45.00. Will sell for cash, \$38.00, or exchange offers for bees and poultry or honey.
C. L. HILL, May's Landing, N. J.

WANTED.—To furnish every beekeeper within 500 miles of Boise, Idaho, with the best and cheapest bee supplies on the market, *quality considered*. Send me your order or a list of your requirements for 1914. Our catalog and price list will be mailed to you free. Order early and get the discounts.
C. E. SHIVERER, Boise, Idaho.

REAL ESTATE

FOR SALE.—Well-established paying bees and poultry plant near Chicago. P. AUGUSTIN, Orland, Ill.

Virginia fertile farms, \$15 an acre up. Easy payments. Send names of two friends interested in Virginia, and receive our beautiful magazine one year free. F. H. LABAUME, Agr'l Agt., Norfolk & Western Ry., Room 246, N.W. Bldg., Roanoke, Va.

Alfalfa, Corn, and Hogs are rapidly making farmers in the Southeastern States wealthy. The South is the new "corn belt" and the natural realm of "king alfalfa." Act quickly while land prices are so extremely low, values rapidly advancing. Farm lists and "Southern Field" magazine sent free. M. V. RICHARDS, Land and Ind. Agt., Southern Ry., Room 27, Washington, D. C.

BEES AND QUEENS

Phelps' Golden Italian Queens will please you. C. W. PHELPS & SON, 3 Wilcox St., Binghamton, N. Y.

Pure Italian bees or their hybrids, in L. 10 frames, wired, full foundation, 1 or 100. JOS. WALRATH, Antioch, Cal.

Connecticut queens, 8-banded Italians only; large and vigorous; ready May 15. Price list. W. K. ROCKWELL, Bloomfield, Ct.

Golden Italian queens, about May 1. Tested, \$1; select, \$1.25; untested, 70 cts. each; dozen, \$8.00. D. T. GASTER, Rt. 2, Randelman, N. C.

Golden yellow Italian queens my specialty. Un-tested, \$1.00; tested, \$1.50. Ready April 1. Safe arrival guaranteed E. A. SIMMONS, Greenville, Ala.

Leather-colored Italian queens June 15. Circular free. No foul brood. 1, 85 cts.; 6, \$4.50; dozen, \$8.00. D. G. LITTLE, Hartley, Iowa.

Three-frame nucleus for sale with queen, \$2.50; 3 or more, \$2.25, on Langstroth frames; commence to ship about May 15. W. H. STANLEY, Dixon, Ill.

Phelps' Golden Italian Bees are hustlers. C. W. PHELPS & SON, 3 Wilcox St., Binghamton, N. Y.

FOR SALE.—200 colonies of Italian bees at \$5.00 per colony. G. H. ADAMS, Spring and Central Ave., Troy, N. Y.

Three-band Italian queens. Tested, \$1.00; untested, 75 cts. Ready May 15. S. CLICK, Mt. Jackson, Va.

Golden Italian queens, \$1.25 each; six for \$6.00; untested; 10th to 15th April. J. B. CASE, Port Orange, Fla.

FOR SALE.—40 colonies Italian bees in ten-frame Langstroth hives, wired Hoffman frames. No disease. J. B. RATCLIFFE, Amboy, Minn.

FOR SALE.—50 to 75 colonies, strong in bees and honey, free from disease, in L. hives, at Oakfield, Wis. Address B. W. WELLS, Grand Rapids, Wis.

FOR SALE.—Italian bees, 1 lb. with queen, \$2.25; 1 frame with queen, \$2.00. Queens 75 cts. each. Safe delivery guaranteed; 30-page catalog with beginner's outfit, for stamp. THE DEROY TAYLOR CO., Newark, N. Y. (formerly Lyons).

FOR SALE.—Ten-frame Root chaff hives complete. True-bred Italian bees, wintered outdoors, fine condition, cheap. Retiring from business.

DR. JOHNSTON, Suffern, N. Y.

FOR SALE.—18 Italian swarms free from disease; preferably in lots of five or more. Prices, \$5.00 and \$7.00, according to hive.

E. R. THOMAS, Nashotah, Wis.

FOR SALE.—Golden Italian queens that produce golden bees; for gentleness and honey-gathering they are equal to any. Every queen guaranteed. Price \$1.00; 6 for \$5.00. WM. S. BABNETT, Barnett's, Va.

FOR SALE.—Italian queens, bees by pound. Descriptive list free. Apiseries under State inspection. Leaflets, "How to Introduce Queens," 15 cents; "How to Increase," 15 cents; both 25 cents.

E. E. MOTT, Glenwood, Mich.

My queens are bred from imported mother. For gentleness and honey-gathering they are unexcelled. Untested, 1, 75 cts.; 6, \$4.25; 12, \$8.00. Safe arrival. Address W. J. FOREHAND, Ft. Deposit, Ala.

1914 QUEENS.—Moore's strain of leather-colored Italians in April at 75 cts. Also bees by the pound, nuclei, tested queens. Write for prices on nuclei. Address OGDEN BEE AND HONEY CO., Ogden, Utah.

FOR SALE.—50 full colonies pure Italian bees in eight-frame Dovetailed hives with Hoffman frames at \$6.00 each. All queens last-year Moore. Hives in good condition, painted. No disease.

F. A. GRAY, Redwood Falls, Minn.

Queens and bees for sale.—See our large advertisement elsewhere in this journal, and read The A. I. Root Co. letter to us regarding our queens. Write at once for large bee and queen circular.

THE PENN CO., Penn, Miss.

Golden Italian queens that produce golden bees, the brightest kind, gentle, and as good honey-gatherers as can be found. Each, \$1.00; six, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.

J. B. BROCKWELL, Barnett's, Va.

Queens ready in May. J. E. Hand strain of three-band Italians, bred for gentleness, honey-gathering, wintering, and long life. Write for price list and free booklet, How to Transfer, Get Honey and Increase.

J. M. GINGERICH, Arthur, Ill.

Phelps' Golden Italian Queens combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; six, \$5.00; tested, \$8.00; breeders, \$5.00 and \$10.00. C. W. PHELPS & SON, 3 Wilcox St., Binghamton, N. Y.

Golden and three-band Italian and Carniolan queens ready to ship after April 1. Tested, \$1.00; 3 to 6, 95 cts. each; 6 to 12 or more, 90 cts. each. Untested, 75 cts. each; 3 to 6, 70 cts.; 6 or more, 65 cts. each. Bees, per lb., \$1.50; nuclei, per frame, \$1.50. C. B. BANKSTON, Buffalo, Leon Co., Tex.

Golden and three-banded Italians, ready March 1. They have been bred for three points—prolificness, gentleness and honey-gathering qualities. Select untested, each, 75 cts.; six, \$4.25; 12, \$8.25; 50, \$32.50; 100, \$60.00. Tested, \$1.50; select tested, \$2.00; three-banded breeders, \$4.00; golden breeders, \$5.00.

GARDEN CITY APIARY CO.,

Rt. 3, Box 86, San Jose, Cal.

Try Forehand's three-band Italian queens. They are raised from imported stock, unexcelled for honey and gentleness. One untested, 75 cts.; 6, \$4.25; 12, \$8.00. Send me your order; and if not satisfied I will return money. Safe arrival.

N. FOREHAND, Rt. 2, Brewton, Ala.

FOR SALE.—California Italian queens, Goldens, and Three-banders by return mail after March 15; select untested, 75 cts.; 12, \$8.00; tested, \$1.00; breeders, \$3.00. Bees by the pound a specialty, ready April 1; 1 lb., \$1.25; 2 lbs., \$2.25; large lots, less. Booking orders now. Deliveries and satisfaction guaranteed. Correspondence solicited. Circular free. J. E. WING, 155 Schiele Ave., San Jose, Cal.

GOOD QUEENS.—Good queens are a real necessity in any apiary if best results are to be expected. The old leather-colored three-band Italians have proven themselves to be the best general-purpose bee extant. These I can supply in any quantity you may wish. Untested, \$1.00 each; \$4.25 for six; \$8.00 per dozen. Safe arrival and satisfaction. All orders will have prompt attention. E. J. ATCHLEY, Bloomington, Cal.

FOR SALE.—Swarms of young Italian bees in packages. Replace winter losses and strengthen weak colonies with healthy young bees; $\frac{1}{2}$ -lb. packages, 90 cts. each; 1-lb. packages, \$1.25 each; 2-lb. packages, \$2.45 each. Young untested Italian queens, the three-banded hustlers, 75 cts. each. We guarantee safe arrival. No disease. For large quantities write for wholesale prices.

BROWN & BERRY, Hayneville, Ala.

BEES AND QUEENS.—Queens bred from Doolittle's best stock, untested, 60 cts. each; \$6.50 per dozen; \$50 per 100. Same stock of year-old queens removed from our colonies to prevent swarming, 50 cts. each; \$5.40 per dozen; \$40 per 100. Delivery guaranteed. Nuclei, two-frame, \$1.50; three-frame, \$2.00. Add price of above queens wanted. We have a rare bargain of apiary of several hundred colonies of bees for sale on easy terms. Particulars on request. SPENCER APIARIES Co., Nordhoff, Cal.

Famous North Carolina bred Italian queens for sale.—(Red clover three-banders); honey-gatherers good as the best. Strictly reared from Geo. B. Howe's best breeders, mated with Root's, Moore's, Davis' select drones; bees that get the honey; free of disease. Untested, 1, 75 cts.; dozen, \$7.50. Select untested, 1, \$1.00; dozen, \$9.00. Tested, 1, \$1.25. Select tested, \$1.50. Extra select tested, \$2.00. Breeders, \$3.00 to \$5.00.

H. B. MURRAY, Liberty, N. C.

FOR SALE.—Early swarms at fall prices; $\frac{1}{2}$ lb. bees, \$1.00; 1 lb. bees, \$1.50. Add price of queen if wanted. Untested three-band Italian queen, 75 cts. each; tested Italian queens, \$1.25 each. These are bred from best honey-gathering strain. No disease. Safe arrival and satisfaction guaranteed. This is undoubtedly the best way for Northern honey producers to increase and improve their stock. Delivery begins about April 5. Capacity, 40 swarms per day.

W. D. ACHORD, Fitzpatrick, Ala.

Many men of many minds; but the minds of practical beekeepers are turned toward the old reliable three-band Italians. We have them in their purity, new blood, new importation. Untested queens from March to June, \$1.00 each; \$4.25 for six, or \$8.00 per dozen; safe arrival and satisfaction to all customers. Write for prices on large quantities. You do not have to return dead bees to us—just state it so on a postal card, and queens dead on arrival will be replaced promptly.

THE GOLDEN RULE BEE CO., Rialto, Cal.

EARLY QUEENS.—Those who desire early queens can be supplied by sending orders to us. Only three-band Italians stand the severe test against diseases, and our bees are clean. Untested queens, \$1.00 each; \$4.25 for six; \$8.00 per dozen. Always safe arrival and satisfaction to everybody. If you desire queens in large lots early, better let us book you as soon as convenient, and money can be sent when queens are wanted. Your check is good, or any way you wish to remit.

THE RIALTO HONEY CO., Box 73, Rialto, Cal.

POULTRY

Buckeye Incubators, Kant Krowd Hoover, let me tell you about them. E. O. WALTZ, Medina, Ohio.

Eggs for hatching. S. O. White Orpingtons. Matting list free. JAS. R. LAMPSON, Box B, Medina, O.

S. C. W. Leghorn eggs, bred to weigh and lay. \$1.00 for 15. PAUL FUNK, Warsaw, Ohio.

R. C. B. Leghorns.—15 eggs, \$1.00; 100, \$3.50. Great layers. FRANK RASMUSSEN, Greenville, Mich.

Stock and eggs for sale, all leading varieties; also geese and Belgian hares. Catalog free. LEVI STUMB, Richland Center, Pa.

Barred Rock eggs, \$2.00 for 15, from high-class exhibition stock, both matings. ALPLAUS BEE AND POULTRY FARM, Schenectady, N. Y.

Pure-bred Indian Runner ducks, snow-white eggs, 15 for \$1.00; 100 for \$6.00. J. C. WHEELER, 921 Austin Boul., Oak Park, Ill.

LEGHORNS.—Eggs for hatching. S. C. W. Leghorns, \$5.00 per 100; \$1.00 per 15. Send for catalog. WOODWORTH FARM, Wilton, Ct.

Eggs.—20 for \$1.00; leading varieties prize poultry, pigeons, hares, etc. Booklet free. Large illustrated catalog, 10 cts. F. G. WILE, Telford, Pa.

Sicilian Buttercups. One utility flock. Eggs, \$2.50 per 15; unsatisfactory hatched replaced at half price. WALTER M. ADEMA, Berlin, Mich.

FOR SALE.—Sicilian Buttercup eggs for hatching, \$2.00 per 15 eggs. L. S. GRIEGS, 711 Avon St., Flint, Mich.

S. C. White Minorcas, \$3.00 per 15; R. C. Buff Leghorns, S. C. Brown Leghorns, and Partridge Wyandottes, \$1.00 per 15. HILLCREST FARMS, Winchester, Ind.

Corning Strain direct, S. C. W. Leghorn eggs and day-old chicks for sale. The strain that weigh, lay, and pay. Also B. P. Rocke at farmer's prices. F. J. ARMSTRONG, Nevada, Ohio.

Runner Duck Eggs.—Fawn, white-egg strain, \$1 per 12 eggs. Single-comb R. I. Red eggs, and day-old chicks. Tompkins strain. SARAH WIDRIG, Rt. 29, Burt, N. Y.

S. C. W. Orpington eggs, 15, \$3.00; 30, \$5.00—direct from Kellerstrass ancestors of "Peggy," \$10, 000 hen." Also Indian Runner duck eggs, 10 cts. each, white and fawn. I. F. MILLER, Brookville, Pa.

WHITE WYANDOTTES.—From heavy laying strain. \$2.00 and \$3.00 per setting. Two matings, both headed by Cleveland 1914 winners. N. P. NICHOLS, Medina, Ohio.

Royal Blue Orpingtons, Nicholson strain. Blue Andalusians; also pure-white Indian Runner ducks, blue-ribbon winners. Eggs for sale. Write me for special prices and description. H. R. ROHE, Buckhannon, W. Va.

Eggs from blue-ribbon stock of the famous American Standard I. R. ducks. The greatest layers known. Eggs, \$1.00 per dozen. H. C. LEE, Brooksville, Ky.

Runner and Pekin Ducklings and hatching eggs. White-egg strain. Blue-ribbon stock. Also drakes. Catalog for stamp. THE DERROY TAYLOR CO., Newark, N. Y.

SICILIAN BUTTERCUPS.—World's champion layers. Lay large white eggs. Very handsome, and the tamest of all breeds of poultry; larger, and eat only half as much as Leghorns. Thoroughbred stock for sale cheap. Hatching eggs, \$2.00 per 15.

HENRY WOODWORTH, Box 505, Cheboygan, Mich.

MISCELLANEOUS

FOR SALE.— $3\frac{1}{4}$ x $5\frac{1}{4}$ camera and Edison phonograph.
E. B. FAY, Alexandria, Minn.

FREE CATALOG of nursery stock. Five best gladioli, postpaid, 30 cts.; five best dahlias, postpaid, 40 cts.
M. S. PERKINS, Danvers, Mass.

FOR SALE.—Dahlia roots, 2 cts. each and up—green flowering, and 100 other colors. Soy beans. Thornless raspberry. Circular free.
JACOB MCQUEEN, Baltic, Ohio.

FOR SALE.—Eastman Panoram Kodak, 4 x 12; value \$16.00; good order. Will exchange for bees by the pound and untested queens or offers.
C. L. HILL, May's Landing, N. J.

HELP WANTED

WANTED.—Reliable man of good habits to work with bees the coming season. State age, experience, and wages first letter.

THE ROCKY MOUNTAIN BEE CO., Forsyth, Mont.

WANTED.—Man (married preferred) experienced in queen-raising; employment by the year on a salary and percentage.

OGDEN BEA AND HONEY CO., Ogden, Utah.

WANTED.—Young man who has had experience producing comb honey in large apiaries, to work for me coming season. Will lease all the bees good man is capable of managing for season 1915. Must be live wire and ambitious; give experience and references.
HARRY CRAWFORD, Broomfield, Colo.

BEEKEEPERS' DIRECTORY

If you need queens by return mail send to J. W. K. SHAW & Co., Loreauville, Iberia Parish, La.

Nutmeg Italian queens, leather color, after June 1, \$1.00 by return mail. A. W. YATES, Hartford, Ct.

Well-bred bees and queens. Hives and supplies.
J. H. M. COOK, 70 Cortlandt St., New York.

QUEENS.—Improved red-clover Italians bred for business, June 1 to Nov. 15, untested queens, 75c each; dozen, \$8.00; select, \$1.00 each; dozen, \$10; tested queens, \$1.25 each; dozen, \$12.00. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Boyd, Ky.

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144 Berkeley St., Boston, Mass.
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PUBLICATIONS ON BEE CULTURE

(Please use coupon below, checking the numbers of items wanted.)

The pamphlets and booklets listed below are of more than ordinary interest.

- 1 **MY FIRST SEASON'S EXPERIENCE WITH THE HONEYBEE.** By the "Spectator," of the *Outlook*, of New York. A ten-page leaflet detailing the experiences of this well-known writer. You will read the leaflet through before you lay it down. Free.
- 2 **THE BEEKEEPER AND FRUIT-GROWER.** A 15-page booklet giving actual facts regarding the value of bees to fruit, and showing how beekeeping may be doubly profitable to the fruit-grower. Fruit-growers are realizing as never before the necessity of having honeybees in close proximity to their blossoming fruit. Free.
- 4 **CATALOG OF BEEKEEPERS' SUPPLIES.** Our complete catalog will be mailed free to any address on request.
- 7 **SPRING MANAGEMENT OF BEES.** A 14-page booklet detailing the experiences of some successful beekeepers, and giving instructions on this oftentimes perplexing matter. Price 10 cts.
- 8 **HABITS OF THE HONEYBEE.** By Dr. E. F. Phillips. A somewhat scientific handling of the habits and anatomy of the bee. Price 10 cents.
- 9 **HOW TO KEEP BEES.** A book of 228 pages detailing in a most interesting manner the experiences of a beginner in such a way as to help other beginners. Price \$1.00 postpaid.
- 10 **THE A B C OF BEE CULTURE.** A complete encyclopedia of bees, of 712 pages, fully illustrated, \$2.00 postpaid; half leather, \$2.75.
- 11 **GLEANINGS IN BEE CULTURE.** A 64-page illustrated semi-monthly magazine—the leading exponent of bee culture in this country. Ten cents per issue, but to new subscribers we will furnish it six months for 25 cents.
- 12 **BACK-YARD BEEKEEPING.** Six interesting lessons written in readable newspaper style. Many facts encouraging the "city bound" man or woman with the back-to-the-land longing. Free.
- 13 **THE BUCKEYE BEEHIVE,** or the management of bees in double-walled hives. Of special interest to the amateur beekeeper. The most complete booklet we publish for free distribution. Illustrated throughout; 84 pages.
- 14 **ADVANCED BEE CULTURE.** A beautifully printed book. Best plate paper has been used throughout its 200 pages, with the result that its many fine illustrations are unusually clear in every detail. Bound in attractive and substantial cloth; \$1.00 per copy, postpaid.

The coupon below may be used as an order sheet by properly checking the numbers of items wanted, and adding your signature, and remittance if required.

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The A. J. Root Co., Medina, Ohio.

Please send me the items checked. I enclose

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SPECIAL NOTICES BY OUR BUSINESS MANAGER

ALSIKE AND MEDIUM CLOVER SEED.

There is still time to sow alsike or other clover seed; and as the market has declined somewhat we offer choice seed as follows, bags included, not prepaid: peck, \$8.00; $\frac{1}{2}$ bushel, \$5.50; one bushel, \$10.50; 2 bushels, \$20.50. Medium clover seed, peck, \$2.60; $\frac{1}{2}$ bushel, \$5.00; bushel, \$9.50; 2 bushels for \$18.50.

SWEET-CLOVER SEED.

We have added further to our stock of sweet-clover seed, and offer the white, both hulled and unhulled, at \$2.00 per hundred less than the prices which have ruled for the past 3 months. We will furnish the white at the same price as we have been selling the biennial yellow as follows:

	Prices in lots of 1 lb.	10 lb.	25 lb.	100 lb.
<i>Melilotus alba, biennial:</i>				
White sweet clover, unhulled	.21	\$1.90	\$4.50	\$17.00
White sweet clover, hulled	.28	2.60	6.25	24.00
<i>Melilotus officinalis, biennial:</i>				
Yellow sweet clover, unhull'd	.21	1.90	4.50	17.00
Yellow sweet clover, hulled	.28	2.60	6.25	24.00
Yellow sweet clover, annual	.14	1.20	2.75	10.00

Convention Notices

The following is a list of the new officers of the Eastern Massachusetts Society of Beekeepers, chosen at the annual meeting April 4: President, Thomas J. Hawkins, 4 Emery St., Malden, Mass.; First Vice-president, J. B. Levens, 274 Tremont St., Malden, Mass.; Second Vice-president, Everett L. West, 38 Pearl St., Cambridge, Mass.; Secretary-Treasurer, Leslie A. M. Stewart, 200 Union St., Franklin, Mass.

FIELD-DAY DEMONSTRATION TO BE HELD AT FORKS OF CREDIT, ONT., CAN., MAY 25, 1914.

The First Canadian National Field Day Meet will be held on Victoria day, May 25, 1914, at the apiary of Mr. H. G. Sibbald, past president of the Ontario Beekeepers' Association, at the Forks of the Credit, Ont.

This great event, which has slowly been gathering force since last December, has now reached that point where the various committees which have been working on the plan feel that it will surpass anything of the kind heretofore attempted in the British Empire.

Plans have been laid for handling a great crowd. Members of committees will be at the various stations from the city up to assist the stranger and bid him welcome. Special coaches will be placed on the train for the beekeepers' accommodation, and the good old-fashioned farmers' hayrack will convey the jolly crowd to the yard, some half mile away.

All the beekeepers within reasonable distance are requested to bring their well-loaded baskets, and prepare for two meals (noon and evening), to take care of those who come from long distances.

To the beekeeper confined within the narrow limits of city life this field day and picnic offers a day of relaxation and freedom from the cares and worries of business, while the producer from the country is afforded an opportunity to meet the city man.

The editors of GLEANINGS and the American Bee Journal have consented to be present and take a part in the work of demonstration, while our own fair Province will have its corps of brilliant men on the "firing line."

For a day's outing no spot in all this magnificent country of ours can surpass the beautiful Forks. Poets have sung its praise; historians have recorded its beauties, but the tongue of man cannot justly describe the sublime and majestic scenery.

Then, dear beekeeper, lay aside your cares and anxieties, come along and bring your families, and enjoy the pleasure of friendly intercourse with the great men of our ranks.

The committee herewith present the program with a feeling of pardonable pride. Never in the history

of beedom in Canada has such a brilliant galaxy of men been brought together for such a purpose. In the evening of life, while dwelling on sweet thoughts of the past, may this great field meet induce you to say:

"Backward, turn backward, O time! in thy flight,
Make me a child again just for to-night."

PROGRAM.

C. P. R. train leaves Union at 7:20 A.M.; arrives at Forks of Credit at 9:25 A.M.
10:00 A.M.—General inspection of apiary, honey-house, appliances, etc.; conducted by Mr. Sibbald.
10:45 A.M.—Mr. J. L. Byer, President of the O. B. K. A., will officiate.
11:30 A.M.—Greetings to all sister organizations and delegates.
12:00 M.—Lunch, provided by ladies.
1:15 P.M.—Mr. O. P. Dadant, editor of the American Bee Journal.
2:15 P.M.—Mr. Morley Pettit, Provincial Apiarist.
3:00 P.M.—Mr. E. R. Root, editor Gleanings in Bee Culture.
4:00 P.M.—Mr. M. B. Holmes, Athens, Ont., director O. B. K. A.
4:45 P.M.—Mr. Wm. Couse, Streetsville, Ont.
5:15 P.M.—Lunch, toasts, greetings, etc.
Train leaves Forks at 6:15 P.M.; arrives at Union at 8:25 P.M.

Ladies' committee (white badge), Mrs. Sibbald, Pres. Please leave baskets with ladies' committee. Information committee (blue badge), all stations. Field committee (yellow badge), Mr. Wilson, Pres. Fare, return trip, \$1.15.

G. R. CHAPMAN, Pres.
CHAS. E. HOOPER, Sec.
Toronto, Ont., April 8, 1914.

KIND WORDS.

My warm regards to my old friend A. I. Root. I presume he would still consider me a latitudinarian in theology, but I am with him in his fight on the saloons, and consider his defense of the Japanese brother a most timely contribution to good will among the races. *Macte esto virtute* (more power to thy elbow).

Chicago, Ill., July 16.

H. J. JAXON.

We greatly enjoy GLEANINGS, especially the Homes department. It is appreciated as much as a letter from a relative. We are sorry Brother Root is like the rest of us, feeling his age somewhat, and making a hero's fight for life; but his strong words of cheer often give us courage in many ways.

MR. AND MRS. L. C. AXTELL.
Roseville, Ill., March 19.

[Older readers will appreciate the above. To others I may explain briefly that, toward 40 years ago, when GLEANINGS was started, Mrs. Axtell was a helpless invalid, confined to her bed; but she got hold of GLEANINGS, got the "bee fever," ultimately "rose up and walked," and finally astonished the beekeeping world with her crops of honey and contributions to mission work.—A. I. R.]

Mr. Root:—I wish to tell you how much good I get from your writings in GLEANINGS. I hope you may live many years to carry on the good work. I am writing for a good many farm papers, and am trying to do what good I can that way. I have a farm near here now occupied by my son, while I am living through most of the year here. In the forenoon I am at my desk. In the afternoon I walk around and rest and read.

For a few months I have been having some trouble with my bladder. It seems to be irritable, so that I must get up from two to six times a night; and urinating is slow, and hurts me if I go very long. I am perfectly temperate—use no tea nor coffee. I am sixty years old, and never had any excesses whatever. I have had my urine tested, and they find no kidney trouble. There just seems to be an acid condition of the system that takes its course this way.

My diet is about as follows: Morning, toasted white bread, with now and then a dish of some cereal. At times a few prunes or a bit of bacon and a cup of cereal coffee. Noon, a little potato and some cue other vegetable, and often a salad of lettuce and celery—rarely pie or cake; night, a little toast again or a shredded wheat, or some such thing, with figs or raisins or dates.

Every morning I spend a few minutes in exercising. I walk about quite a little, and am well except that I am rather constipated and have this bladder trouble. The lower part of the spine is sore a good deal of the time, and often the cords of the upper and middle back get contracted, and it seems to me when they are most so the bladder trouble is worst. I eat very little meat or eggs or milk.

Now, you may be able to help me. What would you suggest in the way of change of diet? If you could map out for me a little menu it would be a great kindness, and one which I should highly reciprocate. I may say that, in regard to the constipation, I try to relieve this by the use of the enema and not by taking drugs. I have taken very little medicine these past ten years.

In your writings you have spoken of apples. I wonder if you could tell me where I could get some nice mild apples at a reasonable price. Our crop was a failure last year. I have not eaten many apples, as it has seemed to me they added to the acidity of the body.

The simple question is, what would you do yourself under these circumstances? I think we may often help one another by making suggestions along these lines. I often get letters asking for help on different matters. I have been highly blessed in my writings for farm and other papers. In a few days I expect to have a little book published under the title "Without Sound of Hammer." It will be one of a devotional series brought out by the M. E. Book Concern. I feel that you will like to know about these things.

The inclosed bill is not sent by way of payment for any advice you may give me, but because I know you are a busy man, and I do not want to feel that I am imposing upon you without some little return.

May He who is always with every man who trusts him keep you and yours.

I drink three pints to two quarts of distilled water every day.

EDGAR L. VINCENT.

Binghamton, N. Y., Jan. 29.

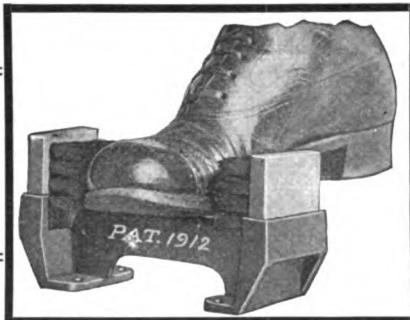
My good friend, as I have never taken any pay for advice I will have the \$1.00 placed to your credit on GLEANINGS.

As you state it, you are living so near right I can only make a few suggestions. I would try cutting off all sweets, even sweet fruits, such as figs and raisins. I have found relief by having no supper except nice mellow apples not later than 4 or 5 P. M. I think you can get nice apples in the large towns as low as or lower than I can get them here; i. e., 30 cts. a dozen. Last, but not least, make it a point to do some work outdoors if possible every day that will at least start the perspiration, and don't forget to ask God daily to give you wisdom and understanding in regard to the care of the body he has given you. I will pray for you.

If your literary work seems to aggravate the trouble, drop it for a time; and, if possible, get deeply interested in some outdoor occupation, say in developing some new idea with plants or domestic animals. Have a daily sponge bath, either night or morning, in a warm room.—A. I. R.

Callender Shoe-scraper

Every House-
keeper will
want one



A glance at the
Illustration
will tell you
why.

Combination Scraper and Brush

Scrapes the mud from the sole of the shoe and cleans the sides at the same time. Every housewife should have one. It will reduce her work in saving the time necessary to clean rugs and floors, which otherwise would be tracked with dust and dirt from the street.

It is made of the finest material; no screws to rust; heavily japanned. Brushes remain stationary. It is so simple that a child can change the brushes.

Every household needs one or more.

Premium Offer: We will send one of these Callender Shoe-scrapers as premium to any reader who sends us TWO NEW subscriptions to GLEANINGS IN BEE CULTURE for six months at the rate of 25 cents each.

Postage on Canadian subscriptions 15 cents additional for each trial subscription for six months.

The A. I. Root Company, Medina, Ohio

Honey-Cans

We have made especial efforts this season to supply our patrons with cans and cases of the finest quality, and we have now in our warehouse a complete stock ready for immediate shipment to you.

There is much satisfaction in knowing that there is a dependable source of supply so near to all Texas Beekeepers, and others in the great Southwest. Experience has taught us to anticipate properly the needs of our patrons, and we have as yet failed to fall down at a critical time. Sometimes we feel that it is not wise for Beekeepers to trust entirely to the supply house for eleventh-hour assistance, but we concentrate our energies, nevertheless, on complete preparation, and when you are ready we are. Write us for prices.

Weed's New Process Comb Foundation

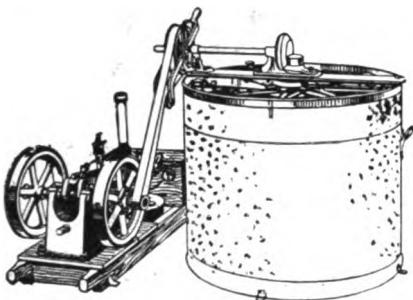
We have made extensive improvements in our comb-foundation factory this season at a great expense, and are now operating day and night under the supervision of a man direct from the A. I. Root Company, who has had many years of experience in the manufacture of this product. When placing your order with us you are assured of receiving Comb Foundation of unexcelled quality.

A full line of Root's Beekeepers' Supplies on hand at all times ready for immediate shipment.

Toepperwein & Mayfield

Nolan and Cherry Sts. San Antonio, Texas

ROOT'S POWER EXTRACTORS for the LARGE PRODUCER for 1914



The late W. Z. Hutchinson, when asked as to what would combine best with beekeeping, said, "The best thing to go with bees is—more bees." If more bees is the slogan, then the best equipment should be installed. This would be an outfit that will handle advantageously the product of 200 or more colonies with a minimum of time and labor.

POWER EXTRACTING OUTFIT.—The value of this cannot be gauged entirely by the number of days it is used during the season. It should be remembered that it displaces a large amount of extra equipment in the way of extra supers and combs. The extracting must be done quickly in order to hold in check the swarming that is sure to follow unless room is given when needed. The amount thus saved, including reduction of labor and time, will materially reduce cost of production.

ENGINE.—This should not be selected without due examination. There are certain types of gasoline-engines that are not fitted for driving honey-extractors. Machines requiring to be started and stopped an endless number of times during the day require an engine of special construction, and the beekeeper will do well to investigate thoroughly these points before purchasing. Our new engines, the "BUSY BEE," are selected for and are exactly adapted for just this kind of work.

CAPPING-MELTER.—No extracting house is complete without one. We have a number of styles and sizes to select from. Illustrations of all these will be found in our large catalog. The smaller sizes are intended to be used with wax-presses, which also are shown.

HONEY-KNIVES.—For rapid and easy work our new steam honey-knives can't be beat. Extra tubing is furnished when ordered. Send for our new 34-page book, "Power Honey-extractors," describing these fully.

These equipments are supplied by various dealers throughout the country. Information as to nearest dealer on request.



The A. I. Root Co., Medina, Ohio

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Every subject is fully illustrated with photographs and drawings. It is complete enough

for the most exacting scholar, yet so simple a child can understand it; and so interesting that everybody will read it with pleasure. These six superb volumes contain over 3000 pages and are printed from large, clear, new type on highest quality paper and bound in heavy buckram. 1500 text illustrations, 24 full page colored maps, 24 full page color plates 24 full page half tones. Leading educators and librarians everywhere agree that this is the finest reference book available anywhere. Highest endorsements.

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Send me, on ten days approval, all charged, a set of the **New Universal Cyclopedia**. In six massive volumes, profusely illustrated and bound in heavy buckram. I will pay your postage. You will notify me to send for the books at no expense to me. If not satisfactory I will send you \$1 in 10 days and \$3 a month for next months until I have paid \$19.

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VOL. XLII. MAY 1, 1914, NO. 9. Google

Announcing the New Typewriter Oliver Number 7

We announce an amazing model—the OLIVER NUMBER 7—a typewriter of *super-excellence*, with automatic devices and refinements that mark the zenith of typewriter progress. A marvel of beauty, speed, and easy action. Typewriting efficiency raised to the *n*th power.

The OLIVER No. 7 embodies all previous Oliver innovations and new self-acting devices never before seen on any typewriter. A leap in advance which places the Oliver ten years ahead of its time. So smooth in action, so light to the touch, so easy to run, that experts are amazed. A model that means to the typist delightful ease of operation.

A model that means a higher standard of typewriting, longer and better service.

The NUMBER 7 is now on exhibit and sale at all Oliver Branches and Agencies throughout the United States.

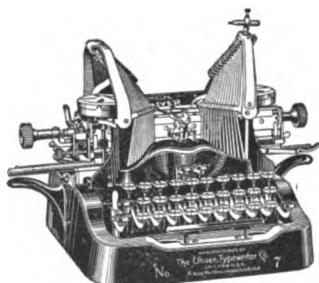
The OLIVER 7 Typewriter No. 7

The Standard Visible Typewriter

The new model has more improvements, refinements and new uses than we can even enumerate here.

The "cushioned keyboard" with "anchor keys" and the new automatic features mean less work for the hands, less strain on the eyes, less manual and mental effort.

With all of these masterly mechanical improvements we have made the machine more beautiful and symmetrical. From every standpoint the OLIVER NUMBER 7 attains superlative excellence.



Nothing you could wish for has been omitted. The new devices, refinements, improvements and conveniences found on the NUMBER 7 represent an enormous outlay and vastly increase its value—the price has not been advanced one penny. We shall even continue in force our popular 17-Cents-a-Day purchase plan, the same as on previous Oliver Models.

The OLIVER No. 7, equipped with the famous Printype, if desired, without extra charge.

You owe it to yourself to see the new machine before you buy any typewriter at any price. Note its beauty, speed and easy action, its wonderful automatic devices. Try it on any work that is ever done on typewriters Try it on many kinds of work that no other typewriter will do.

It is a significant fact that the typewriter that introduced such epoch-making innovations as visible writing, visible reading, Printype, etc., should be the first to introduce automatic methods of operation.

Oliver Book DeLuxe

We are just issuing a richly illustrated catalog describing the Oliver No. 7. A copy is yours for the asking. There are still openings for more Local Agents in many localities. This is a good time to investigate these money-making opportunities.

The Oliver Typewriter Co.
368 Pine Street, San Francisco, Calif.

SEASONABLE "FALCON" Bee Supplies

HIVES—What better chance have you to get your "falcon" hives nailed than just now? Now's the time to place your order for some "falcon" hives. Make use of your spare time by nailing your hives and frames.

SECTIONS—Sections ordered at this time can be folded before the season begins, and you are that much more ahead, which means money in your pocket.

FOUNDATION—This is an excellent time to order foundation and to put it into sections and frames, now when you have the spare time, thus preparing you to go into the season with a good start. Here's what Mr. J. J. Wilder, Cordele, Ga., says about our foundation: "Your foundation is the best I ever bought, and I am more than pleased with it." Mr. Wilder is one of the largest beekeepers in the country.

SUPERS—Supers can be nailed and painted, and filled with sections and starters, by ordering your requirements now. You can not afford to be without supers when the rush comes. Get your order in for "falcon" supers now before the swarming season begins.

Send for our foundation samples and new Red Catalog, postpaid.

Dealers Everywhere: New England States, Ross Bros. Co., 90 Front Street, Worcester, Mass.
Central States, The Fred W. Muth Co., 204 Walnut St., Cincinnati, Ohio.
Western States, C. C. Clemons Bee Supply Co., 128 Grand Ave., Kansas City, Mo.
Southern States, J. J. Wilder, Cordele, Ga., and many others here and abroad.

W. T. Falconer Manufacturing Company, Falconer, New York

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ZANESVILLE, the metropolis of eastern and southern Ohio—is the logical distributing-point for the beekeepers of Ohio, West Virginia, and western Pennsylvania; and those more remote can be served with a large degree of satisfaction on account of the superior shipping facilities of this city.

Our 1914 Catalog of Beekeepers' Supplies and Introduction to Beekeeping is now being sent to those on our mailing-list. If you have not already received or do not receive it soon, a postal-card request will insure your receiving it without delay.

Prospects for the coming season are unusually bright, and both prudence and economy would suggest the early placing of your order.

E. W. Peirce, Zanesville, O.

Airdome Bldg., South Sixth St.

"Curiosity Killed a Cat."

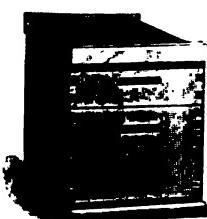
That is a well-known old-time saying; but it does not apply to you, because **YOU ARE NOT A CAT**. It is safe for you, and for your wife and your children, to want to know what is to be found in the woods and the fields around you, in the swamps and meadows, the ponds and ditches. Do not hesitate to indulge in the JOY OF CURIOSITY. You are not a cat. You can satisfy the desire to know by reading

THE GUIDE TO NATURE

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LEAHY MFG. CO., . 95 Sixth St., . Higginsville, Missouri

HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), carriage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

NATIONAL BEEKEEPERS' ASSOCIATION GRADING RULES

Adopted at Cincinnati, Feb. 18, 1918.

Sections of comb honey are to be graded: First, as to finish; second, as to color of honey; and third, as to weight. The sections of honey in any given case are to be so nearly alike in these three respects that any section shall be representative of the contents of the case.

I. FINISH:

1. *Extra Fancy*.—Sections to be evenly filled, comb firmly attached to the four sides, the sections to be free from propolis or other pronounced stain, combs and cappings white, and not more than six unsealed cells on either side.

2. *Fancy*.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white, and not more than six unsealed cells on either side exclusive of the outside row.

3. *No. 1*.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white to slightly off color, and not more than 40 unsealed cells, exclusive of the outside row.

4. *No. 2*.—Comb not projecting beyond the box, attached to the sides not less than two-thirds of the way around, and not more than 60 unsealed cells exclusive of the row adjacent to the box.

II. COLOR.

On the basis of color of the honey, comb honey is to be classified as: first, white; second, light amber; third, amber; and fourth, dark.

III. WEIGHT.

1. *Heavy*.—No section designated as heavy to weigh less than fourteen ounces.

2. *Medium*.—No section designated as medium to weigh less than twelve ounces.

3. *Light*.—No section designated as light to weigh less than ten ounces.

In describing honey, three words or symbols are to be used, the first being descriptive of the finish, the second of color, and the third of weight. As for example: Fancy, white, heavy (F-W-H); No. 1, amber, medium (1-A-M), etc. In this way any of the possible combinations of finish, color, and weight can be briefly described.

CULL HONEY.

Cull honey shall consist of the following: Honey packed in soiled second-hand cases or that in badly stained or propolized sections; sections containing pollen, honey-dew honey, honey showing signs of granulation, poorly ripened, sour or "weeping" honey; sections with comb projecting beyond the box or well attached to the box less than two-thirds the distance around its inner surface; sections with more than 60 unsealed cells, exclusive of the row adjacent to the box; leaking, injured, or patched-up sections; sections weighing less than ten ounces.

HONEY-GRADING RULES ADOPTED BY THE COLORADO STATE BEEKEEPERS' ASSOCIATION,
DECEMBER 18, 1911.

FANCY WHITE.—Sections to be well filled, comb firmly attached to all sides and evenly capped except the outside row next to the wood. Honey, combs, and cappings white, and not projecting beyond the wood; wood to be well cleaned; no sections in this grade to weigh less than 13 $\frac{1}{2}$ ounces.

No. 1.—Sections to be well filled, combs firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey white or very

slightly off color. Combs not projecting beyond the wood; wood to be well cleaned; no section in this grade to weigh less than 13 $\frac{1}{2}$ ounces.

CHOICE.—Sections to be well filled; combs firmly attached; not projecting beyond the wood, and entirely capped, except the outside row next to the wood. Honey, comb, and cappings from white to amber, but not dark; wood to be well cleaned; no section in this grade to weigh less than 12 ounces.

No. 2.—This grade is composed of sections that are entirely capped, except row next to wood, weighing from ten to twelve ounces or more; also of such sections that weigh 12 ounces or more, and have not more than 50 uncapped cells all together, which must be filled. Combs and cappings from white to amber in color, but not dark; wood to be well cleaned.

EXTRACTED HONEY.—Must be thoroughly ripened, weigh 12 pounds per gallon. It must be well strained, and packed in new cans. It is classed as white, light amber, and amber.

STRAINED HONEY.—This is honey obtained from combs by all other means except the centrifugal extractors, and is classed as white, light amber, amber, and dark; it must be thoroughly ripened and well strained. It may be put up in cans that previously have contained honey.

BOSTON. We quote fancy and No. 1 white comb honey at 15 to 16; fancy white extracted honey in 60-lb. cans, 11. Beeswax, 30.

Boston, April 18.

BLAKE-LEE CO.

LIVERPOOL.—The beeswax market is without supplies of Chilian, and the value is about \$37.62 to \$43.74 per cwt. The market for Chilian honey is flat, with retail sales, and values unchanged since our last.

Liverpool, April 1.

TAYLOR & CO.

ZANESVILLE.—No. 1 to fancy white comb is quoted at 16 $\frac{1}{2}$ to 18 $\frac{1}{2}$ in a jobbing way; 18 to 20 wholesale. Best white extracted in 60-lb. cans, 9 to 10. These quotations are for white clover. Western honeys rule about a cent less. Market firm, but rather quiet. Producers receive for beeswax 32 to 33 cash, 34 to 35 in exchange for supplies.

Zanesville, April 18.

EDMUND W. PRICE.

INDIANAPOLIS.—Fancy white comb is being offered here at 16 to 17 cents per pound; amber comb, 14 to 15; white-clover extracted, 9 to 10 in 5-gallon cans. Much comb honey is being held here; but at this writing there is very little demand. Extracted is in fair demand. Producers are being paid 32 cents cash for beeswax, or 34 in trade.

Indianapolis, April 18.

WALTER S. PODUER.

CHICAGO.—Honey has sold quite well during the past thirty days; and while stocks are not heavy it takes some time to work them off, as buyers take only small quantities at this time of the year. There is not much difference in prices. Fancy grades of white clover and linden bring from 14 to 15; sweet clover and alfalfa, 1 to 8 cts. per lb. less, with the light-amber grades ranging from within 1 to 2 cts. per lb. of the sweet clover; extracted white clover and basswood, 8 to 9; other white grades, 7 to 8; ambers, about 1 ct. per lb. less. Beeswax is selling upon arrival at from 83 to 85, according to color and cleanliness.

Chicago, April 17.

R. A. BURNETT & CO.

ST. LOUIS.—Our honey market is very dull, and but little comb honey is selling. Extracted honey is in a little better demand than comb honey, but stocks here are very light. Comb honey is plentiful, and looks as if a great deal of it would be carried over into next season. We are quoting honey, in a jobbing way: Southern extracted in barrels, 6 $\frac{1}{2}$ to 6 $\frac{1}{2}$; 5-gallon cans, 6 $\frac{1}{2}$ to 7 $\frac{1}{2}$; dark, $\frac{1}{2}$ to 1 ct. less. Comb honey, fancy clover, brings 15 to 16; light amber, 13 to 14; amber, 11 to 12; dark and inferior less; by the case, fancy clover, from \$2.75 to \$3.00; light amber, from \$2.50 to \$3.00; amber, \$2.00. Beeswax is very firm, and quoted at 34 $\frac{1}{2}$ for prime impure and inferior, less.

R. HARTMANN PRODUCE CO.

St. Louis, April 21.

Honey reports continued on page 5.

SPECIAL DELIVERY

During this month we shall double our usual efforts in points of delivery and service. We carry nothing but the Root make, which insures the best quality of every thing. We sell at factory prices, thereby insuring a uniform rate to every one. The saving on transportation charges from Cincinnati to points south of us will mean quite an item to beekeepers in this territory. We are so located that we can make immediate shipment of any order the day it is received.

New 64-page Catalog

Our new 1914 catalog contains double the pages of former editions and requires extra postage. It is filled from cover to cover with complete lists of goods in every line to meet every requirement of beekeepers. If you haven't received a copy when you read this, be sure to ask for one. It will save you money.

New Features for 1914

Few radical changes have been made this season. It should be noted, however, that we will send out with regular hives, unless otherwise ordered, the metal telescopic or R cover with super cover underneath. The side rail for the bottom-board will be extra length so as to overcome the difficulty experienced by some last season. Improvements have been made in extractors. We shall carry a very heavy stock so that orders may be filled with our usual promptness. Write us your needs.

C. H. W. Weber & Co.

2146 Central Avenue

Cincinnati, Ohio

Gleanings in Bee Culture

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Editor

A. I. ROOT
Editor Home Dept.

H. H. ROOT
Ass't Editor

J. T. CALVERT
Business Mgr.

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KANSAS CITY.—The supply of comb and extracted is not large—demand light. We quote No. 1 white comb, 24-section case, at \$2.60 to \$2.75; No. 2 ditto, \$2.50; extracted white, per lb., 8 cts.; amber, 7 to 7½; beeswax, No. 1, 30; No. 2, 25.

C. C. CLEMONS PRODUCE CO.

Kansas City, Mo., April 15.

CINCINNATI.—It is an effort to make honey sales, and the stocks of all grades are heavy for this time of the year. Prices are easier than they were. We note many dealers are slashing prices to unload. We are selling fancy comb honey at \$8.65 to \$8.75 per case, wholesale; extracted amber honey, from 5½ to 6½; white extracted, 7½ to 10, according to quantity and quality purchased. We want beeswax at 32 cts. per lb., delivered.

Cincinnati, April 17. THE FRED W. MUTH CO.

DENVER.—The market still remains about the same. It is cleaned up on comb honey pretty well, and looks as though it would be entirely used before the new crop comes on. We are jobbing as follows: Strictly No. 1 white, fancy stock, brings, per case, \$2.52; choice, good color and heavy weight, \$2.39; No. 2, well finished, fair color, \$2.25; white extracted, 8; light amber, 7. We pay 82 cash and 34 in trade for clean yellow wax delivered here.

COLORADO HONEY-PRODUCERS' ASSOCIATION,
Denver, April 22. FRANK RAUCHFUSS, Mgr.

KIND WORDS.

I would as soon think of doing without bread as to think of doing without GLEANINGS, even if it were only for A. I. Root's department, to say nothing about bees. MRS. J. C. GILLETTE.

Camargo, Okla., March 25.

I do not have bees any more, but yet I want GLEANINGS, as it is always clean and uplifting, and especially your Home talks. May you live long, and be spared to carry forward the good work; and may God grant that "at evening time it may be light."

Johnstown, Pa., April 3. A. S. HARRIS.

There is a difference of only a few months in our ages. Since Dec. 1 I have pruned 600 seven-year-old peach trees; made 60 hives as good as the best, and looked after 150 chickens. Bees are swarming now; but with the hives all ready, and frames filled with foundation on wire, I am not worrying. I have lived a temperate life; and a good mother's influence enabled me to live a clean life as a soldier during the Civil war. In fact, she always seemed to be with me.

C. G. KNOWLES.
Bakersfield, Cal., March 14.

Dear Mr. Root:—In accordance with your offer in special notices will you kindly mail me the dasheen seed, as I should like to see what it would do here! Also please mail same to Mrs. Lucie Lecompte, Austin, Texas. Mrs. Lecompte is a new subscriber whose name I sent in a few days ago. She is a widow living in Austin. The gentleman who paid for the subscription was so impressed with Our Homes, in March 1, that he subscribed for it for her. I believe she is his niece.

We are still having frosts here, but they will have to stop soon now. My bees are in fine condition, and have gathered plenty every month this winter, and, I think, almost every week.

Vivian, La., March 28. O. E. HAMMOND.

Goldens that are Golden

I have disposed of business in Philadelphia, and will raise all queens that I possibly can the coming season, and will fill all unfilled orders first. Queens are getting better each year. Prices: Select untested, \$1.50; tested, \$8.00; breeders, \$5 to \$10. Send for booklet. GEO. M. STEELE, 30 So. 40th St., PHILADELPHIA, PA.

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Management of Out-aparies

This is a revised edition of "A Year's Work in an Out-apairy," containing the latest ideas of the author, Mr. G. M. Doolittle, of New York, telling how he has employed them and secured during a poor season an average yield of 114½ lbs. per colony. 1913 edition ready for mailing. 50 cts. postpaid.

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The A. I. Root Company
Medina, Ohio

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Mead Cycle Co., Dept. K 113, Chicago, Ill.

Gleanings in Bee Culture

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CIRCULATION 35,000

Issued semi-monthly.

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Woodman's Section-Fixer

A new machine of pressed-steel construction for folding sections and putting in top and bottom starters all at one handling.

With top and bottom starters the comb is firmly attached to all four sides, a requirement to grade fancy. Increase the value of your crop this season by this method.

The editor of the "Beekeepers' Review," in commenting on things at the recent Detroit, Mich., beekeepers' convention, stated: "It was the consensus of opinion of those who saw the machine work that it was the best thing for the purpose ever brought on to the market."

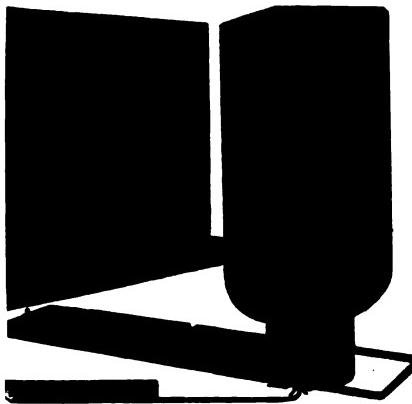
The C. & N. W. Beekeepers' convention in December unanimously adopted the following resolutions: "Whereas this convention has been impressed by the exhibit of the Woodman Combined Section-press and Foundation-fastener, and believes that the same is practical, and a labor-saver for the beekeepers at large; Therefore, be it resolved that the Chicago-Northwestern Beekeepers' Association in convention assembled do heartily endorse the above device as a practical machine for beekeepers producing comb honey.

"I. E. PYLES, ARTHUR STANLEY, W. B. BLUME."

It makes no difference how many or what kind of fasteners you have, we want you to try this one. Your money back if you are not satisfied it is the best on the market. Send for special circular showing 10 illustrations. Immediate shipments of all goods; 40-page catalog. Price with one form, 4x5 or 4 $\frac{1}{4}$ x4 $\frac{1}{4}$, \$2.50; extra form, 15 cts. Daisy lamp, 25 cts. Weight of outfit, 4 lbs. Postage extra.

A. G. WOODMAN CO., Grand Rapids, Mich.

THALE'S REGULATIVE VACUUM BEE-FEEDER



Pleases everywhere. Not a dissatisfied customer. Let me double your honey crop by stimulative feeding. Most practical method known. Send 55 cts. in stamps to-day for a sample feeder.

Meissila Park, N. Mex., April 4, 1914.

H. H. Thale:—Please find money order in settlement for feeders I received on ten days' free trial. They feed well. They have made the queens of the colonies that I fed start laying.

JOHN ROMANS.

Poultney, Vt., March 31, 1914.

Harry H. Thale:—Please find money order for \$10.00 to fill my order for 36 vacuum feeders with 36 bottles for the feeders; ship to Poultney, Rutland Co., Vt., and oblige. The sample feeder works O. K. If you can forward them at earliest convenience it will be appreciated. Bees are quite short of stores after a long cold winter in Vermont. I lost 4 out of 41, so have 37. But I have an idea that with 37 vacuum feeders and a barrel of sugar (850 lbs.) they will make good.

THOS. CANNERY.

TERMS, CASH WITH ORDER

Sample Feeder, with two bottles complete, postpaid,	\$.55
10 Feeders, with one bottle for each feeder,	3.00
25 " " " " "	7.50
50 " " " " "	15.00
Extra bottles with cork valve, each,10

H. H. THALE, INVENTOR AND MANUFACTURER Box C25, MAYWOOD, MISSOURI

Eastern Buyers Send Orders to Earl M. Nichols, Lyneaville, Mass.; B. H. Masters, Edison, Ohio, and Harry W. Martin, New Holland, Pa. Western Buyers Send Orders to D. B. Hensperger, Ordway, Colo.

Eastern European Beekeepers

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 Athens, Greece
 Bucarest, Roumania
 Genoa, Italy
 St. Petersburg, Russia
 Sofia, Bulgaria
 Strassburg, i. E., Germany

For catalog and inquiries write at once to : :

Emile Bondonneau

Root's General Agent for Eastern Europe and Colonies

154 Ave. Emile Zola, Paris 15 (France)

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We furnish it cut to any size.

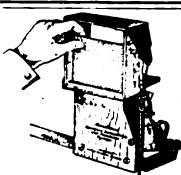
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We Expect to Use
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of beeswax during the next **SIX MONTHS**, and we have on hand less than twenty tons. We offer for good average wax, delivered at Medina, 33 cts. **CASH**, 35 cts. **TRADE**. If you have any good wax to sell write to us or ship it by freight. Send us shipping receipt, giving us gross weight also net weight shipped. Be sure to mark your shipment so we can identify it when received.

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If you want your wax worked into foundation we are prepared to do this for you at prices equal to those made by other standard manufacturers. Write for price if interested.

The A. I. Root Co., Medina, Ohio

"If goods are wanted quick, send to Pouder."

ESTABLISHED 1869

When You Think of Bee Supplies, Think of Pouder

A very complete stock of goods on hand, and new arrivals from factory with an occasional carload to keep my stock complete. Shipments are being made every day, and the number of early orders received is very encouraging. Numerous orders reached me during our February and March blizzards, which indicates that the beekeepers have confidence in the coming season.

My new catalogs have been distributed. If any of my friends have failed to receive theirs, please write for another. If more convenient you may make up your order from the Root Catalog---our prices being identical. For very large orders at one shipment, write for an estimate, and I can save you something by following the factory schedule.

I shall be glad to hear from my friends as to how bees are wintering and springing, and as to prospects for clover.

Walter S. Pouder
878 Mass. Ave., Indianapolis, Indiana

Indicate on a postal which of the catalogs named below you are Interested In ————— They are Yours for the Asking.

CATALOG A.—BEE-SUPPLIES, listing every thing a beekeeper needs for his bees. Our goods are all "Root Quality," and we can save you time and freight expense in getting them. Let us furnish you with an estimate on your needs for the season.

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We have candy in large paper pie-plates just right for late winter and early spring feeding. Write for prices. We carry a full line of supplies at all times.

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Our 1914 64-page catalog ready to mail you free. . . Can make prompt shipment of regular-stock goods, as we have a good supply of The A. I. Root Co.'s goods on hand. The rush season will soon be on hand. Our freight facilities are good. Small packages we can rush through by parcel post. Express rates are much lower now also. Let us quote you. Let us hear from you. Beeswax taken in exchange for supplies or cash.

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"Griggs Saves You Freight"

With four carloads of new goods on hand, we are now better prepared for the rush than ever. But don't wait to be in the RUSH. Send your order in now, and have the goods on hand, ready for use.

New Illustrated Catalog of 60 Pages

We want one in every beekeeper's hands. Send postal for one to-day. It is free.

White-clover Extracted Honey Wanted, also Beeswax
in exchange for supplies. It will be to your interest to get in touch and keep in touch with us.

S. J. GRIGGS & CO.,

26 NORTH ERIC STREET,

"Griggs is Always on the Job"

The One Subject on which all Beekeepers can agree--—"LEWIS SCETIONS!"

There are many subjects on which no two beekeepers can agree; but here is one they can agree on. They all acknowledge that Lewis Sections are the best to be had—that they excel in quality and workmanship; and when you say Quality and Workmanship you have said all there is to be said about a honey-section.

Let us take you with us through the different operations and show you how Lewis Sections are really made.

First the material, which is the best Wisconsin white basswood that can be obtained, is bought by an experienced buyer by the carload—millions of feet of it. It arrives at the Lewis factory in the board, and is sorted as carefully as a woman picks over strawberries. The best boards are then sent on their buzzing journey through the factory; fed through a planer watched over by a veteran in the business; sawed up into correct thicknesses and lengths and run through a polisher, the sandpaper polishing both ways of the grain.

Then the particular work commences. Here is where the intricate machinery gets the strips, rabbets them, scores them, dovetails them, and then the finished sections are packed away. But the secret is here: This delicate machinery is cared for like a trotting horse. The Lewis section foreman has been watching it, caring for it, keeping it right for the past thirty years.

He is Still on the Job Making Lewis Sections for you.

No matter what Hives, what Frames, what Supers, and what not you use,

Insist on Lewis Sections

Every crate going out with the Lewis name means something to you. Here is what one of our customers has just written us:

"We have been using the G. B. Lewis Company's No. 1 Sections for several years, and have a few of other makes, but find the Lewis goods the best. We have put up about 30,000 sections so far this season, and have not found one section in the lot that was not perfect. We find they hold perfectly, and hold together where some of the other makes come apart. We use the Rauchfuss Combined Section-Press and Foundation-Fastener with Dadant's Foundation."

G. B. Lewis Company, Sole Manufacturers Watertown, Wis.

Thirty Distributing Houses. . . Send for the name of the one nearest to you.

Send for Our Prices on

BEE SWAX

We are paying higher prices than ever before at this season. WHY? Because of the tremendous demand for

Dadant's Foundation

Write at once. . . We will quote prices F. O. B. here or F. O. B. your station.

**DADANT & SONS
HAMILTON, ILLINOIS.**

Gleanings in Bee Culture

Published by The A. I. Root Co., Medina, Ohio.

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MAY 1, 1914

NO. 8

EDITORIALS

WE wish to call particular attention to the article by R. F. Holtermann, on the importance of drawn combs in practical beekeeping.

The Editorial Staff of the Review

OUR old friend Prof. E. G. Baldwin, of Deland, Fla., is now one of the associate editors of the *Beekeepers' Review*. We congratulate both. By the way, the last issue of our esteemed contemporary is full of good matter; and, what is more, it is a true Association organ devoted to Association matter. Mr. Townsend, the editor-in-chief, is an experienced beekeeper; and that is of supreme importance in the matter of selecting material for publication.

Excellent Wintering all Over the United States and Canada; Clover Prospects

IN the 29 years that we have had editorial charge of this journal, we do not remember a single spring when the reports showed such universally good wintering. This means, of course, that bees throughout the country will be stronger and in better condition for the harvest.

There has been a large amount of rain and snow during the past winter, and this is all very favorable for the growth of clover and other honey-plants; but the precipitation has been so excessive that we fear a drouth may set in along in May or June. The United States Weather Bureau says that one extreme is likely to be followed by the other. We can only hope that history will not repeat itself this coming summer.

Latest from the Apalachicola Apiary

THE latest reports from Mr. Marchant go to show that we have been having at our Apalachicola apiary a heavy flow from

black tupelo—so much so that it has been crowding the queens, interfering with breeding and with the drawing-out of the frames of foundation. The boys were expecting to extract, beginning with the week of the 13th, to give the queens room to lay. Our Mr. Marchant is making a desperate effort to make his big increase; but the cool weather in February and March, and the heavy flow from black tupelo, have been interfering with his plans. He begs, therefore, that he be given a little more time; but the early spring in the North is shoving out the fruit buds ahead of time, and we may have to move one ear of bees ahead of our schedule. Mr. Marchant doesn't like this a little bit.

Cellar Wintering at Medina; Making Increase in the Cellar

WE reserved about 125 colonies at Medina, and the rest, 300, were sent to Apalachicola, as before explained. The Medina bees were left outdoors in double-walled hives until in December when snow was on the ground. They were then brought in on sleds and wagons and put in our two cellars—one under the machine-shop and one at the warehouse which is made entirely of concrete and brick. The walls are so massive in the latter place that a nearly uniform temperature is maintained, and the bees there were practically undisturbed all winter. Some of the colonies under the machine-shop were fed hard candy. The purpose of giving them candy was to stimulate brood-rearing, and it did. Our Mr. Pritchard, who has just taken the bees out, reports that many of them are much stronger now than when they went into the cellar last December, for breeding continued more or less all winter; and even the bees in the warehouse did not lose in strength, but rather gained. There was no loss in either cellar except among four or five that had been robbed of queens and bees for observatory hives in show windows.

Some Big Inspection Work in Arizona; How Did He Do it?

We announce the arrival of a copy of the report of the State Apiary Inspector to the Governor of the State of Arizona, from which we make the following clipping.

Phoenix, Ariz., Dec. 31.

Hon. Geo. W. P. Hunt,

Governor of the State of Arizona.

I have the honor of submitting my report as your State Apiary Inspector for the year 1913.

I was sworn in on the 14th of July, and entered upon my duties as Inspector of Apiaires.

I have inspected 26,888 colonies of bees; 19,858 colonies in Maricopa County; 3630 colonies in Yuma County; 2558 colonies in Graham County; 790 colonies in Pinal County, and 7 colonies in Pima County.

I found 115 colonies diseased with foul brood in Yuma County. I put all yards under quarantine where I found disease, and instructed the owners to destroy the diseased colonies by burning them.

I have appointed one Deputy Inspector for Yuma County, and I think we shall be able to rid the county of the disease.

I have collected from the five-cent inspection fee per colony, \$966.30 to date.

J. P. Ivy, State Apiary Inspector.

We have submitted this report to Geo. H. Rea, inspector for Pennsylvania, who has had considerable experience, and who offers the following query:

Arizona Inspector of Apiaires appointed and entered upon his duties the 14th day of July, 1913; closed up his work and made his report to the Governor on Dec. 31, 1913; 147 working days between these dates, inclusive. Inspected 26,888 colonies of bees. I wonder how he did it.

I worked hard last summer, and managed to inspect an average of sixty-five colonies per day, while the Arizona report shows nearly three times that many. Since it is necessary for the inspector to spend practically one-half of his working hours in traveling and in conversation with beekeepers it would seem impossible that so much could be accomplished unless he skipped or skimmed over many hives. Or this might be true: The Arizona apiaires are large, and comparatively close together; but even then the figures, to an Easterner, seem large. I do not raise the question in a spirit of criticism, but desire to learn how my Arizona brother manages to accomplish so much.

How Spraying Liquids to Kill the Codling and Gipsy Moth is Decimating Whole Apiaires

MORE and more we are getting complaints of wholesale poisoning of colonies of bees—in fact, whole apiaires—as the result of ignorant spraying of fruit-trees while in bloom, or the ordinary spraying of shade-trees in New England to stay the ravages of the gipsy moth. It is getting to be a very serious problem in some parts of Massachusetts, where some beeyards have been literally wiped out. It is evident that there has been a widespread call for the article in our Feb. 1st issue, page 91, by a New England Veteran on the subject of "Wholesale

Spraying of Blossoms Causing Wide Disaster." So great indeed has been the demand that the issue containing that article was *entirely exhausted* before we knew it. There are other good things in that particular number, but this spraying danger looms up so large that evidently hundreds of our readers have been asking for copies to lend to their neighbors who practice spraying in season and out of season. On the other hand, it is probable that there are times when spraying in bloom causes no damage. But we have too many reports of how bees have been poisoned to death—whole colonies and whole apiaires killed out—to make the practice safe.

N. B.—Perhaps there are some who would be willing to spare their Feb. 1st issue. If so, send them in so that we can mail them to others, and thus spread the truth where it can do more good.

"The Man who Never Loses any Bees During Winter"

IN 1882 and '83 A. I. Root had a good deal to say in these columns about "the man who never loses his bees." It was during that winter that the heaviest mortality occurred that was ever known; and yet this man, Mr. H. R. Boardman, then of East Townsend, Ohio (now renamed Collins), wintered his bees that year without loss, the same as he had been doing for years before. During the long interval he has been doing the same thing winter after winter; and three years ago, when there was such a heavy mortality, he did it again.

A few days ago we received a letter from Mr. Boardman, saying he had again wintered without loss. We wrote asking if it was in that same beehouse, and whether he had been doing it right along. His reply is worth publishing:

Mr. Root:—Yes, I have wintered again without loss, and have been doing so in the old beehouse of 35 years ago, and am still the man who winters without loss unless I yield to the temptation to do too much experimenting in my wintering methods.

I need not tell you that three years ago was a disastrous winter for the bees; but I wintered without loss and sold off the increase from my stock for \$150 (for orchard pollination), and got a fair crop of honey. My success in wintering is worth all there is in the business now. One hundred colonies is all I care to keep.

Collins, Ohio.

H. R. BOARDMAN.

Mr. Boardman will be remembered as the man who held the secret for many years of how to keep liquid honey from granulating without the use of artificial heat. When we published Mr. E. B. Rood's method of putting the bottles in a solar wax-extractor, our old friend very generously came forward, saying that that was the method he had used; and in view of the fact that the "secret was out," he would tell the public of it.

Mr. Boardman is a man of unusual intelligence, a nature-study man, and a bee-keeper who has just passed his 80th birthday, and this fall we plan to give his method of wintering in an upground beehouse that he has pursued with such success these thirty-five years or more. A full description was given by the writer, with a cut of his beehouse, in these columns, April 15, 1889, page 319.

Orchardists Asking for Bees

It is remarkable how the orchardists of the country are waking up to the importance of having bees in the orchard. The facts presented in another column, by one of the best pomologists of the country, are well worth reading. In this connection it will be interesting to note that a big demand for bees is springing up all over the country from fruit-growers—not because they have the bee-fever or wish to produce honey, but because they have learned that they can produce more and better fruit by having bees on their places.

By the time this journal will have reached our subscribers, many of our bee-men will be locating outyards. Do not forget to help your neighbor the fruit-grower, and help yourself by spreading the truth about bees and orchards. Tell how the bees are actually breaking down the branches; of the loads of fruit they help to make possible on the trees. By spreading this knowledge it will be easier to secure fine locations, either at no cost to yourself, or at an insignificant rental price. Up-to-date fruit-growers are often willing to pay you for putting bees on their places instead of you paying them for the privilege. But the policy of the beekeepers should be to give and take on equal terms—put the bees on the place without charge either way.

In locating beeyards do not forget to fence them. Woven-wire fencing is recommended by Wesley Foster in his department in this issue; and it is about as good and serviceable as any thing we know of.

That "Comfortable Feeling" Over Those Indoor-wintered Bees in Medina

In Mr. Byer's department in this issue, page 337, he says he cannot understand why the cold February and March we had in the Northern States should cause us to have a comfortable feeling that our bees at Medina were in cellars, in a climate as "mild" as that in Ohio. "Mild" climate in Ohio! It makes us fellows south of the

lakes smile a little. Yes, it is milder—but we have changeable damp weather. It may be down below zero for a few days, and then the next week the temperature may be 50 above. Breeding will get nicely started when another cold snap will come, killing both brood and bees trying to hover it. A long steady spell of cold weather, the hives well protected with banks of snow, is not nearly so hard on bees as extremes of cold and warm, with little or no snow. With these conditions of climate in February and March we could not help having a "comfortable feeling" that our Medina bees were in our big cellars where the temperature does not vary more than five or six degrees, and where there is plenty of fresh air.

If we had a cellar under the house, that was not frost-proof, small and damp, and had 150 colonies to winter, we should be decidedly more comfortable if those 150 colonies were housed in double hives *outdoors*. As the majority of people do not have an ideal cellar for wintering, the majority of beekeepers in Ohio do better with bees outdoors, providing, of course, there are suitable windbreaks and warm dry packing around the brood-nest.

"Slightly Exaggerated"—Our Queen Business in Southern Florida

WHEN the newspapers announced that Mark Twain was dead, he said the report was "slightly exaggerated." This is somewhat the situation in regard to a newspaper report which inadvertently crept into our columns, appearing on page 5 of our April 15th advertising section. The report went on to say that "E. R. Root, son of A. I. Root, millionaire honey-producer, and king of the bee business," etc., had "practically decided" on establishing in Pompano, 18 miles north of Miami, "a colony for raising queen-bees." Evidently the reporter thought that "colony" was not big enough; for later on he says that we were going to establish a "queenery that would mean several hundred more bee colonies." The interview is indirectly attributed to Mr. O. O. Poppleton; but with his usual accuracy of speech we are sure he did not authorize any such statement, much less any reference to A. I. Root as a "millionaire honey-producer," for this, of course, is very greatly "exaggerated." A. I. Root himself will be amused if not disgusted, as were we.

The facts are these: We were making a tour of Florida, investigating, but have come to no conclusion as yet. We have made tentative arrangements to raise queens at Pompano providing no other place can

be secured. The objections to Pompano are the exorbitant freight and express rates on bees as a distributing point; and dragonflies in April, that kill practically 90 per cent of the queens that are out to mate; and the month of April is the one month in all the year when we could least afford such a loss. The point in favor of Pompano is that bees and queens can be bred every month in the year.

We might say in this connection that there are several other exaggerated newspaper reports concerning our trip into Florida. The Florida newspapers are proverbially inclined to boom their own town: and if they can get a scintilla of truth they frequently exaggerate it beyond all semblance of fact.

A typewritten copy of the foregoing was submitted to A. I. R., who adds:

I am not a millionaire—never was, never expect to be, and don't want to be. I am sure God did not intend I should. I am not built that way.

Some More Important Evidence Showing the Value of Bees as Pollinators

Report of the Twentieth Annual Convention of the Massachusetts Fruit-growers' Association Held at Springfield, Mass.

A STENOGRAPHIC report of the twentieth annual convention of the Massachusetts Fruit-growers' Association lies before us. A careful perusal of this will convince the most skeptical of the value of bees in the making of more and better fruit from the standpoint of the fruit-grower. It contains several addresses of more than ordinary value—among them one from Dr. Burton N. Gates, Professor of Bee Culture at the Amherst Agricultural College, on the subject "Bees Indispensable to Modern Horticulture." This is followed by a paper by Wilbur M. Purrington, entitled "The Value of Orchards to the Beekeeper." This, again, is followed, after some discussion, by a paper from Earl M. Nichols, of Lyonsville, on the subject "Beginning with Bees, and How to Secure Stock." So far the evidence is from the standpoint of the beekeeper; but Prof. W. W. Chenoweth, the Assistant Pomologist at the Massachusetts Agricultural College, Amherst, next follows by a paper on the subject "Importance of Bees in the Cross-fertilization of Fruit" from the standpoint of the orchardist, and for that reason will have more weight with the fruit-grower. Our space is too limited at this time to permit us to give this address in full; but we take pleasure in presenting Prof. Chenoweth's summary, which will be read with unusual interest:

A thoughtful consideration of all the evidence be-

fore us, it seems to me, fully warrants the following general conclusions:

1. All tests, wherever made, and all general observations, agree that many varieties of apples, peaches, pears, plums, sweet cherries, and grapes are unable to set a crop of fruit when limited to their own pollen.

2. Some varieties of the above-named fruits are partially self-fertile, and a few are apparently wholly self-fertile, though the degree of fertility varies between rather wide limits, depending upon location, season, vigor of trees, etc.

3. All investigators agree that, as a general rule, the fruit resulting from crossing, even in self-fertile varieties, is larger and better developed than self-fertilized fruit. This is explained by saying that foreign pollen furnishes a greater stimulus to growth because it is more acceptable to the pistil, and not because it transmits size character of the variety from which it came.

4. All evidence at hand contradicts the theory that the wind renders any dependable assistance in bringing about cross-pollination among the above-named orchard fruits, while it does emphasize the importance of the honeybee as an agent in rendering this great service to the fruit-grower.

5. It has been shown beyond dispute that spraying open blossoms with arsenical poisons is injurious to bees. The orchardists who persist in this practice secure little if any benefit which would not result from either an earlier or a later application. Also he runs the risk of injury to the unfertilized open flowers, in addition to leaving thousands of poisonous cups which kill the goose which lays him golden eggs.

6. The character of the weather at blooming time is the final determining factor of the fruit crop. Cool, cloudy, or rainy weather at this season not only affects the development of the pollen, the growth of the pistil, and consequent development of ovules, but the action of insects is also reduced to the minimum, thereby lessening the chance for cross-pollination. It has been shown that excessively cool weather at blooming time often renders self-fertile varieties incapable of self-fertilization, though they still retain the ability to be cross-fertilized.

In conclusion it seems safe to say that the fruit-grower cannot afford to make very extensive plantings of any of the orchard fruits under discussion without making provision for abundant cross-pollination. This is most easily and practically done by choosing commercial or standard sorts that will bloom at approximately the same time, setting these varieties in small blocks of only a few rows each, and by establishing a few colonies of honeybees near or in his fruit plantation.

We do not suppose that this report as a whole is available to any except members of the Massachusetts Fruit-growers' Association, of which Mr. F. Howard Brown, of Marlboro, is Secretary and Treasurer, and Harold L. Frost, of Arlington, President. Those interested might possibly secure a copy by applying to either of these gentlemen.

A copy of this valuable report ought to be in the hands of every fruit-grower, as we consider it one of the most valuable that was ever published—valuable because of the data presented showing the intimate relationship that should exist between the bee-keeper and the fruit-grower. Some very full information is given on the subject of pruning and spraying, and is the more valuable because it is clear up to date.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.

BEES came out of cellar, April 13, "in apparently good condition;" white clover looks promising, and dandelion blossoms are just opening. Glad I'm a beekeeper!

HELLO, GLEANINGS! I suppose you feel quite smart in your new dress. You do look rather nice. When all the women are coming out with their new Easter bonnets it's only fair you should have new head-gear.

THE *Chicago Record-Herald*, one of the leading dailies of Chicago, if not the leading daily, has come out with the announcement that it will accept no more liquor advertisements; also two Pittsburg dailies. That means a whole lot.

MENTION of workers taking a hand in a queen-fight reminds me that years ago I had several cases in which, after the introduction of a queen, I found a good many dead workers freshly thrown out. I took it that there were two factions, one for and one against the queen, resulting in a battle.

MY bees were fed as soon as placed on summer stands. A solid frame of sealed honey was shoved into the entrance under the bottom-bars (that's only one of the advantages of that two-inch space under bottom-bars). Then a little board was tacked in front, leaving an entrance about $\frac{3}{4}$ inch square.

ARTHUR C. MILLER catches it, page 286. That's right, Bro. Crane; he's always making trouble, and you never know where he'll start up next. After all, aren't you drawing it a bit strong to make "at least 35 lbs. of heavy syrup" the amount thought needed to be fed October 1? It may be true in some cases, but I think they are very exceptional. I doubt if I ever thought one of my colonies needed to be fed more than 25. Please remember that for every one like you there are 20 who will guess that a colony will get along with a good deal less than it really needs. Here's the way it's likely to be: "I guess that colony will squeeze through with 10 pounds;" and then when he doubles that and adds half as much more, like enough he'll have it about right.

I TOOK a well-filled section that weighed 14 oz., carefully cut out the comb, melted it, and rinsed the resulting cake of wax. The wood (of course slightly daubed) weighed 31.6 grams (1.115 oz.); the wax, 13.27 grams (.468 oz.). Deduct weight of wood and wax from 14 oz., and we have left 12.417 oz. as the weight of the clear honey. The consumer who buys such a sec-

tion at 25 cents pays at the rate of 32.21 cents a pound for his honey, since the wood and wax are of no value to him. If he can buy extracted honey at 15 cents a pound he is paying 17 cents for the looks and possibly better quality of comb honey. Yes, I know I'm a comb-honey producer, but the truth's the truth. [If you will turn to the last edition of the A B C and X Y Z of Bee Culture, page 608, and the former edition under the heading of Wax, you will find that your figures approximate very closely those made by ourselves. For instance, we state that a 16-ounce section of honey consists approximately of $14\frac{1}{2}$ ounces of honey, a little over $\frac{1}{2}$ ounce of wax, and about an ounce of wood. When we take into consideration the fact that your section weighed only 14 ounces to start on, your figures are very close to ours. But look here, doctor; don't you remember that honey in the comb, if well ripened, has a flavor and bouquet that the same honey out of the comb does not have? We never tasted any extracted honey quite the equal of a correspondingly fine article of comb honey from the same source. Wax itself has an aroma all its own. Separate that wax from the honey, and a part of the delicate flavor is gone. The process of extracting, exposure to the air, and the process of heating to prevent granulation, robs virgin honey of a slight amount of its original flavor. The original flavors in honey are very volatile, and are easily driven off by exposure to air or heat or both. While the ordinary consumer, perhaps, may not notice the difference, the connoisseur will; and any consumer, if he has a chunk of comb honey and a small amount of extracted honey from the same comb, will detect a slight difference in favor of the article in the comb, providing the liquid article has been extracted several days. Pardon us for quoting our A B C and X Y Z of Bee Culture again; but you will recall that we have made a strong point of this under the head of Comb Honey, and again under Extracted Honey. We sent these articles to a number of honey connoisseurs, and they all agreed that our judgment of the relative merits of the two kinds of honey were correct. Yes, sir, 'e; the writer believes that we ought to emphasize the fact that honey in the comb well sealed is a little superior to the same honey out of the comb equally ripened. If this were not true, the general public would not be willing year after year to pay more than twice the price for comb honey.—Ed.]

J. L. Byer,

NOTES FROM CANADA

Mt. Joy, Ont.

LATE COLD SPRING.

As intimated in the third paragraph below, we are having a very late cold spring. Bees had a fine flight March 17, for which we should be thankful indeed; for since that date we have had nearly a month without a day for bees to fly; but as the bees are held back, so is vegetation of all kinds, so perhaps the late spring may not be so bad after all.

* * *

CLOVER PROSPECTS.

What little clover went into winter quarters appears to have wintered well so far, although the cold drying winds of April that we are having are not helping matters much. But the frost is about all out of the ground; and with no frost present, we rarely have the "heaving" of the clover as is the case when we have thawing by day and freezing by night, when the subsoil is still frozen hard from the winter's cold.

* * *

DID THE COLD SNAP OF THE NORTH GO INTO THE SOUTH?

While we have to report a late cool spring, friends in North Carolina and other southern-central States report to me that their season is unusually early. But these reports came a few weeks ago, and I have been wondering if our cold snap might not be extending into the sunny South and freezing some of the extra-early vegetation down there. I sincerely hope such has not been the case, but shall watch with interest for future reports from various regions.

* * *

WINTERING IN CANADA AND OHIO.

Commenting on the unusually cold weather during February and March of this year, our editor expresses himself as not being sorry that their bees are for the most part in Florida, and the rest in cellars in Medina. (April 1, editorial.)

I can understand the matter in regard to the Florida outfit, for I believe they expect to do more than double the stock sent down there before bringing north again in the spring; but why such thankfulness about having the bees in the cellar in a climate as mild as that in Ohio? I have been in apiaries this spring where the temperature went below 40 two or three times in February, and the bees had no flight between Nov. 23 and March 17; and since the latter date they have been shut in steady till date of writing (April 13). During February only four or five mornings recorded higher

than zero; and yet for all that the bees have not wintered badly by any means. As I have often stated, I cannot understand these differences in regard to outdoor wintering; and perhaps at this time the editor will more fully explain to some of us wondering mortals up here in the "cold belt." [We have much more to fear in a frequent *changeable* climate such as we have in Ohio than you have with your colder steady cold. For that reason, good cellars such as we have, where the temperature can be maintained, is better for our bees than the uncertain weather outside. We shall have more to say on this point in our editorial department.—Ed.]

* * *

WILL SPECIALIST BEEKEEPERS EVER AGAIN SUFFER SEVERE WINTER LOSSES?

This difference in conditions should be a factor in making calculations for the future; for we are quite safe in assuming that winter losses among specialists will never be as heavy as was the case among the great number of small beekeepers a few years ago. Some few have presented the argument to me when professing to have no fear of overproduction, saying that a bad winter or two would soon even up matters again; but as already intimated, I don't believe that there is apt to be any very general knock-out very often, owing to the business being more in the hands of specialists who naturally give the bees better care than do those running a few on the farm simply as a side issue.

* * *

THE TEMPORARY SLUMP IN HONEY PRICES AND THE CRAZE TO GO INTO BEEKEEPING.

Although there has been undoubtedly a slump in honey prices in Ontario (only temporary I hope), this fact has in no way affected the craze for people to go into beekeeping; and as a result the demand for bees for spring delivery is very keen. Owing to heavy increase during the past few years in many places with uniformly good wintering, I believe that the heavy losses of some years ago are more than made up, and that to-day Ontario has the most bees in its history. Of course there may not be as many men keeping bees as formerly, for the farmers that were wiped out during the bad years have for the most part never attempted to get bees again—at least that is the case in our vicinity. But the increased number of specialists, with their larger holdings, more than make up for these exceptions.

BEEKEEPING AMONG THE ROCKIES

Wesley Foster, Boulder, Colorado.

STOCK IN BEE-YARDS MAKING THE BEES ILL-NATURED.

Last fall one-half of one of my out-apries was moved into Boulder close to the foothills. The colonies left at the outyard are in a pasture where horses run during the winter and early spring. There is no fence around the hives, and the horses have walked around among the hives more or less, but not enough to cause any trouble except that the bees are very cross. The bees at the home yard that came from this outyard are as gentle as need be. The horses have apparently irritated the bees and spoiled their tempers.

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WOVEN-WIRE FENCE FOR OUT-APIARIES.

For an out-apriary fence that can be quickly built and as quickly taken down nothing can surpass a woven-wire one, four feet to five feet high. If a barbed wire is run around the top it will prevent horses reaching over and perhaps breaking down the fence. Posts made from old iron pipe 2 to $2\frac{1}{2}$ inches in diameter sharpened at one end, and driven into the ground two feet or more are good. Holes are drilled through the pipe, and the fence fastened to the posts with wire. A good strong woven-wire stock fence is reasonable in cost, and, if five feet high, will keep out stock and also be a protection from molestation by thieves or mischievous boys.

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FULL SHEETS VS. STARTERS IN SECTIONS.

With a rapid uninterrupted flow from alfalfa and sweet clover, or, for that matter, from any honey-plant, the advantages of section honey-boxes filled with full starters over a small starter are not great. With such a honey-flow an inch starter the full width of the section across the top, and a five-eighths starter the full width of the bottom, will give as fine a filling as a $3\frac{1}{2}$ -inch top starter and a half-inch bottom starter. There seems to be an advantage in the bees drawing out the comb in one cluster and then filling in around the edges later. They will leave scarcely any more pop-holes at the edges than they will make by gnawing out in a full sheet. There is an advantage in the full starter because it does away with the uneven effect of the store comb often built; also the filling of the sections is better in a slow or intermittent flow.

This season I am trying out the plan of putting in full sheets of extra-thin founda-

tion, fastening in with a wax-dropper on the four sides. I expect also to put up several thousand sections with light brood foundation in full sheets waxed in on all four sides. Several thousand sections will be used with $2\frac{1}{2}$ -inch top starter, and about a half-inch bottom starter. Then a number with one-inch top starters will be used, and a half-inch at the bottom. A full sheet fastened at the top only, and coming as close to the bottom as possible, will also be used. Perhaps what I find out will not be valuable to any one but myself.

[We should be glad to get your report of this at the close of the season.—Ed.]

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PROSPECTS FOR COLORADO EXCELLENT.

Prospects still continue favorable. Alfalfa is in excellent condition, and sweet clover will not be outdone. Weather conditions have been ideal so far. The precipitation is more than an inch above normal so far for 1914, and the ground was saturated from the big snow of December, 1913. We have very favorable prospects for a good flow from dandelion, fruit-bloom, and other spring flowers, so that those who make increase early should be able to build all colonies and increase up ready for the surplus flow from alfalfa and sweet clover in July and August. Some farmers are predicting a dry May and June on account of the abundance of spring moisture; but there will be plenty of water for irrigation during May and June; and with hot weather in July and August, and a few good rains, we should get honey. Cold rains always hurt us if they come in the summer; and if we get a cold rain in the middle or latter part of August, our flow so far as surplus storage goes is off for the comb-honey man.

My estimate would be that there are 25 to 35 per cent more colonies in Colorado than in 1913, and bigger and stronger colonies could hardly be desired. Six frames of brood the 15th of March is considerable for a colony; but I had them, and they went through a cold spell of 10 above zero without the loss of any sealed brood that could be found. The colony that can do that is a strong one, to my notion.

This seems to be a year when we can easily fill all our empty combs with bees and get a honey crop too; but there is many a slip, as we fully realize. A hailstorm, grasshoppers, cold rains, or excessively dry weather may each or all discount our prospects.

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.

On page 137, Feb. 15, the words "lumber pines" should read *limber* pines. I make this correction because the pines at that elevation are not fit for lumber, being of a very scrubby growth.

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GOLDENS SHOWING UP WELL.

The golden queen that was at the head of my best producing colony last year is still doing fairly well at the middle of her third season. As a breeder she is worth much, and will be used for that purpose. I have goldens and leather-colored, but am decidedly partial to the goldens, not alone because they are bright, but because they are producing results, and are attractive besides.

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IMPORTANCE OF PLENTY OF COMBS.

There is nothing that increases the yield like plenty of combs to catch the raw nectar. A colony that has to wait for a super of combs to be finished ready for extracting, to give it more room, is losing valuable time. A friend, whom I consider one of the best beekeepers in the South), said to me the other day, "If I had plenty of empty combs I could get from a third to a half more honey during the season." This gentleman has not lost a colony in two years. [See article by R. F. Holtermann, and footnote on page 331, this issue, that supports your position.—Ed.]

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FEEDING IN THE SPRING.

Arthur C. Miller, page 131, says, "Stimulative feeding for spring should always be done in the fall," which reminds me of a time in my boyhood days when my mother instructed me how to feed the pigs corn. She said, "Give them ten ears for supper and ten for breakfast." I gave them twenty ears for supper so they would need none for breakfast. Mother thought I had a wrong idea of the matter, and so I think of Mr. Miller. [To make your illustration entirely parallel, should you not compare the feeding of bees in the fall to the putting of corn in the corn-crib? The bees do not eat all of that syrup in the fall; they put it in the combs and keep it for future use.—Ed.]

• • •

TOO MUCH FREE ADVERTISING.

I entered an agreement with a western fruit and farm journal to furnish an article for each month's issue. The first month I

wrote on "The Relation of Bees to the Fruit Industry." For the second issue I submitted some of my ideas on hives, frames, etc. My copy was returned with the following letter: "Purely from the advertising standpoint, don't you think the publicity given the Langstroth hive and the Hoffman frame is a little too great for a free notice? I do and would ask you not to mention the names, or else give me another article."

I felt faint when I received the letter, but recovered in time to write the editor that it would be impossible for me to furnish more copy if I could not be permitted the use of common terms. This man is doubtless a success as an editor; but when it comes to bee lore he does not know even common terms.

• • •

HONEY-CROP PROSPECTS.

My last report spoke of weather conditions not being favorable for honey-gathering at that date, April 5. Cloudy conditions prevailed more or less until April 10, since which time the weather has been ideal for gathering honey. The orange bloom is now about gone, with the yield far below expectations, due to the fact that the season for orange "beat the bees to it," but would not have been so bad had the weather continued warm instead of the many cloudy weeks we had. But "what is one man's gain to another man's loss?" With the cloudy days came rain which gave new life to all vegetation, and undoubtedly extended the blooming period of the button sage. At the time the button-sage bloom was being held in check by the cool weather, there were millions of bees hatching to add to the gathering force as soon as the weather cleared. Those depending on the orange alone "lost out" with the weather; but where sage was the main source a benefit has been the result.

The button sage is yielding heavily, and colonies that are ready for the harvest are doing a land-office business. I believe we shall get at least four more weeks of flow from it, which will add greatly to our output. Then if the white sage should yield well, which now seems probable, it should add two or three more weeks to our heavy flow. Oh for the bees! but an enormous crop of sage honey will be impossible this season for lack of bees in condition to gather it. Some apiaries will harvest a large crop, while others a few miles distant will return but little.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.

PREVENTING SWARMING BY REMOVING BROOD.

"I wish to prevent swarming by the removal of brood, as an old beekeeper tells me this is the best way. But I read somewhere that in removing brood only the sealed should be taken, as swarming was caused by any colony not having enough unsealed brood for the nurse bees to care for. In other words, when the unsealed brood in any colony is not sufficient to consume all the chyle prepared by the nurse bees, swarming is sure to be the result. Is this right?"

It is possible that there may be something in this theory. If I am right, those basing their claim on this lack in consumption of the chyle prepared believe that the distension of the chyle-stomach is what causes uneasiness in the nurse bees, and that this uneasiness is conveyed to the whole colony—so much so that the majority of the bees with the mother sally forth for a new home.

But I have never been able to see the logic in any such reasoning; for with the issuing of any swarm, and the finding of a home (when not interfered with by man), these nurse bees do not have even a few larvæ to which to feed their loads of prepared chyle. Without the apiarist to provide a home for any swarm, often days and sometimes weeks elapse before any home is found at all. The scouts will search for an old vacated hive, a hollow tree, or a cleft in some rocks; and if none is found, the swarm will move on some few or many miles, when the cluster will be formed again. Scouts are sent out again, and so on till a place for a home is found; and when such is found, comb must be built and supplied with eggs by the queen, and three days elapse before these eggs hatch into larvæ. So it has always seemed to me that, if this accumulation of chyle theory had any foundation in fact, the bees were fools almost beyond measure, and their instinct not equal to an emergency.

"Again, I have read that the main cause of the bees swarming was a lack of cells in which eggs could be deposited by the queen; and in removing brood the unsealed brood should be taken, in which case the queen could find proper employment for her powers, not only in the cells of the combs given to replace those taken with unsealed brood, but in the cells vacated by the emerging brood. Is this right?"

Now candidly, do you think it right to try to tangle any one who has never ad-

vanced either of these theories in this way? I am well aware, that, with a hive large enough to contain all the empty cells which any queen can occupy with her eggs during the whole season, little if any swarming will be the rule. Our beloved Moses Quinby told us, more than half a century ago, that with a box filled with comb large enough to provide cells for holding all the brood, honey, and pollen that all the bees produced by any queen could care for and bring in, such a colony would never swarm, and no one has proved Quinby incorrect. But such a box is not calculated for the wants of any beekeeper who wishes to produce gilt-edge honey to put upon the market, so is not to be considered by the one who is working for honey in the most marketable shape. I have tried taking away from two to four combs of brood from colonies that had gotten strong enough in numbers to swarm two weeks or less before the harvest of white honey commenced; and after comparing results in taking away both unsealed and emerging brood, I could see no difference in favor of either. If practiced in just the right time before the harvest, and before the bees begin preparations for swarming, fairly good results may be obtained.

"When removing brood to prevent swarming, where should the two to four empty combs (to replace the combs of brood removed) be placed in the brood-chamber so the queen will be most likely to occupy them, instead of their being filled with honey?"

I have tried putting all of them together in the center of the hive, placing any combs of honey the colony might have at each side next the hive, then the remaining combs of brood between these combs of honey and the empty combs set in; and where the bees are not storing much more than is used daily, this seems to put big-business ideas in the queen, and brings us as good results as are obtainable in using this removal-of-brood plan. Then I have tried alternating these empty combs with the combs of brood left with the colony, where nectar was coming in sufficiently so that the colony was at work in the supers of sections, and found that this brought forth better results than did the massing of the empty combs together. But I must record many failures with this plan of removing combs of brood to prevent swarming—not only in its failing to prevent, but in its being successful in putting much honey in the sections.

GENERAL CORRESPONDENCE

BEES ENTERING COMB-HONEY SUPERS

The Great Advantage of Drawn Combs Over Full Sheets of Foundation

BY R. F. HOLTERMANN

On page 903, December 15, 1913, Mr. McMurray refers to the natural like or dislike of bees to working in section-honey supers on account of their subdivided and crowded condition. I have not had the experience he describes, that bees, when given passages of communication, will close them up with wax or propolis. It may be due to locality; but I have found that bees gnaw comb foundation and stop openings when the supers are put on before a surplus-honey flow or after the sections and hive are crowded. They may also do it possibly between periods of flow when there is quite a length of time with no nectar coming in. Then, again, when a swarm issues, the bees are ready with a lot of wax scales—material which they can use for comb-building in their new home. If the swarm returns, owing to modern methods of manipulation, that wax may have to be deposited somewhere about the hive. In corroboration of this statement I might say that I have been able to detect the colony that swarmed in my absence by observing the wax deposited by the bees on the front of the hive. They were simply in a condition where they had secreted and were secreting wax scales for the comb they expected to build after first alighting to see that the queen was with them, and then, when next clustering, building comb. This second alighting proved to be on the hive, owing to my having previously clipped the queen's wings, and a portion of the wax was deposited by the bees on the front of the hive, and more would be taken care of in the hive.

THE ADVANTAGE OF DRAWN COMBS.

Bees do not care to go into supers containing only comb foundation. This is true whether the foundation is the size of a Langstroth frame, or of the ordinary section.

I do not hesitate to say that if the extracted-honey producer has no drawn surplus combs he will have much more trouble with the swarming impulse; and the surplus-honey crop, particularly if measured by the amount in the supers, will be materially reduced. Drawn comb invites the bees into the supers in a way that

foundation entirely fails to do. The critical time in the prevention of swarming is when the brood-chamber is near the point of being crowded; and unless the bees' energies can be successfully diverted to the acceptance of the super as a part of the hive, they are likely to swarm. The difference between drawn comb and foundation in the majority of instances is just enough to turn the scale in favor of swarming.

When the bees have to draw out foundation, they store honey in the brood-chamber which would otherwise have been put in the super, thus depriving the queen of room to lay, with the result already mentioned. At the same time, the worker force is decreased if the flow is prolonged, so that there is a corresponding decrease in the surplus-honey crop.

After a careful observation of colonies to which foundation was given in the supers, side by side with colonies having drawn comb, I would estimate that, if the former would give 75 lbs. of honey in the supers, the latter would as easily give 100 lbs.

The first year that I began beekeeping afresh, and started with the twelve-frame Langstroth hive, it was a bad (perhaps I should say a good) year for swarming. Some of my help, perhaps myself as well, were not very skillful at detecting queen-cells in recesses of comb. I had no drawn comb, and I remember that on one Sunday fifteen swarms issued and clustered together, and this is an apiary that we were trying to run on the non-swarming plan.

One going into the production of extracted honey could well afford to pay 30 or even 35 cts. each, or perhaps more, for enough perfect combs to supply half of each extracting-super with such comb. I do not like to put more than two or three sheets of foundation into a twelve-frame super at one time. I am aware that there is a difference in the way in which individual colonies will take such treatment. The honey-flow also makes a difference. I almost believe that, if the hive is on a loose bottom-board, the new super, if it contains only comb foundation, should be put for twenty-four or forty-eight hours *under* the brood-chamber with a queen-excluder between. Localities may vary much in this respect; but

during thirty years or more I have kept bees in quite a variety of localities, have had varied season and honey-flows, four or five varieties of bees and their crosses, and this is the conclusion that I feel justified in coming to.

In conclusion let me say that I am not ignorant of the method of putting some of the brood into the super. This undoubtedly helps in a measure, but only in a measure, and also has its disadvantages.

Brantford, Ont., Canada.

[We wish to indorse, as emphatically as we can, Mr. Holtermann's argument in favor of drawn combs in preference to full sheets of foundation. While the beekeeping fraternity at large will acknowledge of course that the former are superior, they have not yet begun to appreciate how much *more* superior they are. Last summer some colonies refused to enter extracting-supers with foundation, but they would enter supers with drawn combs without the least hesitation.

Another thing Mr. Holtermann brings out that will bear emphasizing is the value of drawn combs for preventing swarming. If we could, we would shout this on the housetop of every extracted-honey producer, because it will prevent the loss of a good many swarms, and the loss of a good deal of nectar that might otherwise be secured.

So important do we regard drawn combs that we sent down to our Florida apiary

last winter 6000 frames of foundation; and one of the "problems" that our Mr. Merchant has had to tackle is to force the bees to draw these out and make increase at the same time. If he had drawn combs he would have had 25 to 50 per cent more increase.

Many and many a time we see beekeepers who are careless about storing their combs. The worms get into them, and in other cases hundreds and thousands of them are stacked up in all kinds of heaps on the honey-house floor, where they get bruised and broken, and sometimes we find them in the back yard where the sun melts them down. The owners say they will pick them up "some other time;" but they don't. The facts are, these drawn combs, next to the bees themselves, are the best capital the extracted-honey producer can have. If a full sheet of wired foundation is worth, say, 16 cents, a frame of drawn comb ought to be worth 35. In a good year they might be worth even 50 cents.

The problem with many beekeepers should be to get their frames of foundation drawn out *before* the honey season. This can be done by placing a full sheet between two frames of brood, when the spreading of brood can be practiced with safety. If possible, get the combs drawn out in the fall, during buckwheat or soon after; and when once drawn, stack them up carefully in the honey-house, where they can be fumigated, ready for next season's use.—Ed.]

SHALL APICULTURAL EDUCATION BE ENCOURAGED?

BY OREL L. HERSHISER

Beekeepers may be divided into two general classes, more or less sharply defined, one believing in offering the best of apicultural advantages and encouragement to any and all who may wish to learn the science; the other, including all who do not believe in so broadly offering such advantages and encouragement.

In the former class may be included the educators engaged in apicultural instruction in schools and colleges; bee-inspectors and government apiarists; authors of books on apiculture; editors and publishers of apicultural periodicals, and most of the writers, correspondents, and contributors to them; and most of the members of beekeepers' associations, especially those who read papers and make addresses, and otherwise give instruction.

Inasmuch as nearly all apiarists who produce honey to sell avail themselves of every opportunity to hear if not to engage

in the instruction and proceedings of beekeepers' conventions, it would seem that nearly or quite all the entire membership of the craft would be included in the former class. However, paradoxical as it may seem, it is well known that some apiarists who are leaders in convention proceedings, and otherwise prominently engaged in apicultural educational work, are also opposed to offering educational encouragement to students desiring to qualify themselves as beekeepers. It appears that the two classes of beekeepers overlap each other, some individuals being not only on the fence but on both sides of it at the same time.

Opponents of the scheme of education and encouragement evidently fear that any considerable accession to the ranks of beekeepers will result in an overproduction of honey and consequent decline in prices to a point where beekeeping will cease to be a remunerative occupation. It should be re-

membered that only those having the natural adaptability for apiculture will ever be extensively engaged in it; and what would be more natural than that the education of all apiarists to a better knowledge of the business would be mutually beneficial? If all beekeepers were taught how to obtain honey as good as the bees can make, the average quality would be better, more dependable, and more desirable than that which is produced in ignorance of best methods. Beekeepers well schooled in their occupation know more of markets, and are better advertisers and salesmen than those of lesser knowledge. Unschooled, untutored, and ignorant owners of bees are the real menace; and it is this class of beekeepers who harbor infectious bee diseases, and are instrumental in spreading them, and who demoralize markets.

Not a large percentage of those educated at agricultural colleges engage in agricultural pursuits as a life occupation. The same is true, to a greater or less extent, of other lines of technical training. After acquiring his education for a certain purpose the individual finds he lacks the adaptability, or, for one reason or another, abandons his first choice of a calling and engages in some other lifework. It may be reasonably inferred that only a small percentage of those who make a scientific study of apiculture, either at college or elsewhere, will ever become honey-producers in the true commercial sense. There is really no danger of too many well-qualified beekeepers.

Phenomenal crops of honey are likely to occur at long intervals; but overproduction in the average season is not likely ever to occur. Beekeeping has been carried on in some state of advancement ever since the dawn of history; but extensive commercial apiaries seem to be one of the developments of the last century. In our own time we have noticed localities where from one to a few hives of bees could be seen near many farmhouses, change to the extent that one could travel for a day or two without seeing evidences of bees kept by farmers. Yet in some such localities, many times, more bees are kept, honey produced, and profit realized than when there were so many individuals who had only a few bees. The natural protection of forests and fences disappeared; brood diseases came in; the bees, without a real master, perished, and in their place an apiarist establishes an apiary, and, with a thorough knowledge of the business, operates it as a profitable business proposition.

Beekeepers who operated out-apiaries thirty years ago were few and far between. Scarcely more than half a dozen in the

United States, and one or two in Canada, are all within my recollection, and most of these with an operator in each apiary during the swarming season. Of late years, however, while the numerous small bunches of colonies owned by farmers are gradually disappearing, we have not only many more apiarists who run out-apiaries and make apiculture an occupation, but also many more operating bees as a side line on a smaller scale in a commercial way, as may be judged by the attendance and enthusiasm at beekeepers' conventions.

During recent times the amount of honey produced annually has greatly increased, and the consumption has kept pace with the production. Honey, having a high food value and an agreeable flavor, should command a higher price, and we think prices have not risen in proportion to the comparative values of some other leading food products; yet it must be admitted that honey sells for far better prices than when there was less produced. This tends to prove that a greater number of expert apiarists, and steadily increasing production, have not, thus far, operated to the detriment of apiculture as an occupation.

When we consider that the beekeepers of many of the States and some of the provinces have long since maintained State and provincial beekeepers' associations, including many local, branch, and affiliated societies, some of them receiving governmental financial support; that several colleges have for many years been offering apicultural instruction; that several States and provinces make liberal appropriations for the maintenance of numerous bee-inspectors, a part of whose duties is to instruct in the proper care of bees; that the United States Government, some State governments, and the Ontario Government, each maintains a department from which helpful pamphlets and bulletins on apicultural subjects are issued free, and that the science of apiculture is enriched by numerous books and periodicals of high class, we can not avoid the logical conclusion that the unanimity of these several educational agencies indicates beneficial results that amply justify a continuance of the educational scheme.

As the result of a bumper crop of wheat, corn, hay, etc., was there ever an advocacy of cessation of education and encouragement to engage in agriculture? No; but, on the contrary, the slogan is, "Back to the farm," or "Keep the boys and girls on the farm," as the means of keeping the State and nation truly prosperous. As the result of a ruinous bumper crop of fruit, has dissuasion from embarking in horticulture been advocated? No; but the States and

provinces are deeply interested in the planting of new fruit areas, and "top working" the worn-out orchards to make them productive; for time has proven that bumper crops are exceptional. How much less, then, should we fear ill effects from a bumper crop of honey which time has proven may be expected at very widely separated periods, and especially as extracted honey is not perishable, but is as good several years hence as at present, if properly handled!

Governments establish departments of agriculture, including the various branches of rural husbandry, for the purpose of bettering the conditions of the rural population in every way, and of increasing the wealth of the State or nation. Governments realize that the prosperity of the people, especially those engaged in rural husbandry, is the prosperity of the Government. As an aid to this end, agricultural colleges are established and maintained. It can hardly be possible that apiculture should be an exception, and fail to respond advantageously to governmental encouragement.

Conservation of natural resources—of water for irrigation and power; of forests and re-forestration, or reclamation, etc., has engaged the attention of many eminent scientists of late years. In fact, no line of research could be of greater benefit in maintaining and increasing the wealth of a state or nation than to conserve and increase the materials naturally within its boundaries that add to the welfare and happiness of its people. Honey is a natural resource. If not gathered by bees it is lost. To conserve it, bees and beekeepers are indispensable. Perhaps much more than is gathered goes to waste. Is it not true that the state would add to its wealth in proportion to the additional amount of honey saved from waste?

And whatever inures to the benefit of the state benefits the people in the same ratio.

Let us, then, continue to offer encouragement and instruction to any and all who believe they can aid in the conservation of the ungathered nectar, to the end that the myriads of flowers of the fields may not bloom and secrete their sweetness in vain.

Kenmore, N. Y.

[We believe Mr. Hershiser is correct in what he says, all through. Education along apicultural lines will do more good to eliminate foul brood than any thing else. The beekeeper who makes the real trouble and annoyance is not the one who has had apicultural training at some school, but, rather, the man who has not read up, does not take any bee-paper, and never goes to conventions. The more we can have of apicultural schools, and foul-brood inspectors who can give apicultural instruction along general lines, the better. There is plenty of unoccupied bee territory in the country for all, and the apicultural student has it pounded into him, as we happen to know, that he can not make any money keeping bees if he locates his yard within half a mile of another bee-owner. No, he is not the man to crowd territory or to overstock it. The few who stick to the business will go into territory where they can have all the nectar for the simple reason there is no one else to get it.

Those who are casting reflections on the possible value of our apicultural schools will do well to read Mr. Hershiser's article carefully. Frankly, is there any argument against apicultural schools but a narrow short-sighted selfishness that would eliminate all competition? Is it not true that they will stimulate a demand for honey?
—ED.]

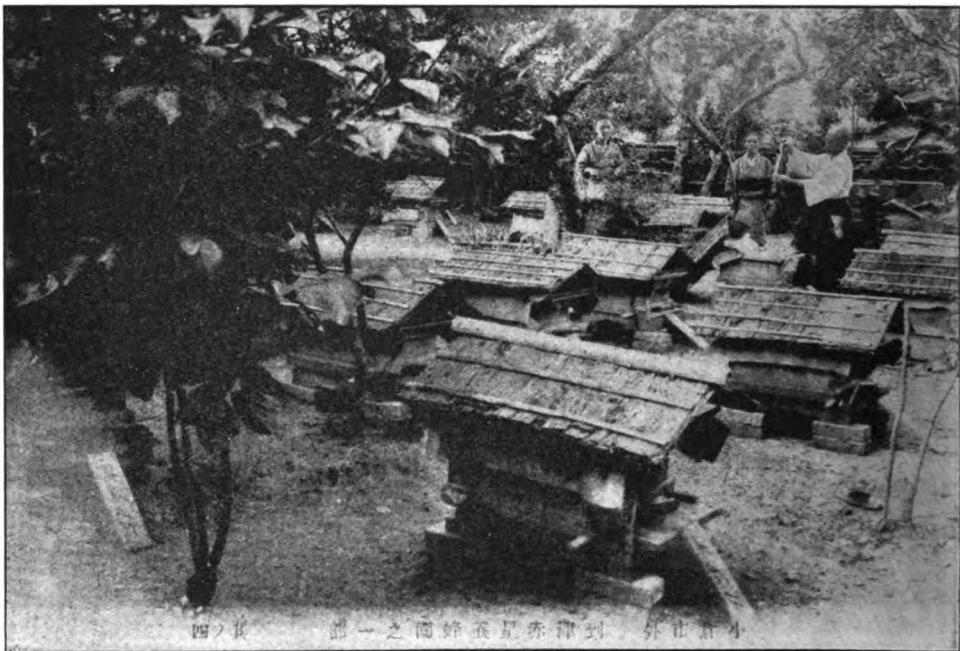
MORE DRASTIC MEASURES NEEDED FOR CURING FOUL BROOD

BY W. N. RANDOLPH

The only way to stamp foul brood out of our country effectually is to use more radical measures. Nearly all the schemes I have read about look to saving every thing—bees, hives, frames, and, worst of all, honey. I think that a man should not be permitted to sell honey from a diseased hive, nor even from a diseased yard; much less do I believe that he should be allowed to rear queens in a yard infected with foul brood and send them out all over the country. Boiling the honey to mix in the Good candy sent with the queens does no good, because to those of us who have read the text-books on the law of evidence it is a badge of

fraud. It makes the honest and careful queen-breeder say in effect, "I may have foul brood in my yard," and the careless or dishonest one who knows, or ought to know, "Oh, well! I will warm up my honey a little, and let it go at that. Who is to know the difference?"

If every beekeeper in the country would resolve to use more drastic measures at once, it would help to solve the problem of foul brood. He should, on the first discovery of the disease (and all ought to be on guard now) destroy the bees after night-fall; and unless he has a steam-boiler and large tank he should destroy, by burning,



The Akahoshi apiary, Itozu, Kokura, Japan.

all the fittings of the hive—frames, combs, and followers. As for the hives, bottom-boards, and covers, a thick coat of white lead and oil applied on every surface, inside and out, will bury beyond resurrection every foul-brood germ, and will add to the lasting quality of the hive; or burning over with the gasoline-torch will do. Painting, however, is more quickly and cheaply done.

Cleaning up and starting anew a large yard at this place, I both scorched and painted the hives and outfit (of course destroying all the combs and frames) and raked off and cleaned the yard and bee-house. For two seasons there has been no further sign of the disease. I have enlisted all of the out beekeepers in our fight. The initial cost of our plan was greater, may be; but we feel well repaid because we are done with that question.

The owners of this yard—bright, enterprising young men—had built up a splendidly equipped apiary, with all the latest improvements, and had run it only three years, when they sent to a queen-breeder for a lot of queens with nuclei. These had foul brood, and, not knowing any thing about the disease, the first notice the owners had was that their yard was rotten with it. Now this thing ought to be stopped. It can be stopped if the bee journals get busy. No man ought to be permitted to send bees

or queens any distance, without a certificate from some competent authority, stating that the apiary is free from foul brood. We argue, theorize, and experiment too much, and the system has spread the malady nearly all over the country, when it should be a simple matter of destroying and quarantine. By being watchful the approach may be discovered, and one may have to destroy only a hive or two. More attention should be given to rearing of queens whose progeny are more nearly immune to the disease.

Letohatchie, Ala.

[Some beekeepers may take issue with our correspondent. The man who has no foul brood, and never expects to get it, will probably argue that the other chap who has the disease should not sell his honey. But the latter would probably take the other view, on the ground that the honey itself would be harmless for human consumption. The only danger from such honey is from empty cans thrown out back of the grocery or in the back yard of the consumer, and herein lies a big danger.

Boiling honey to make Good candy does a great deal of good. We know most of the queen-breeders of the country personally, and we are satisfied that they are doing business on the golden-rule feature to the letter. However, there is a better way yet. The



The gate entrance to Akahoshi apiary, Itosu, Kokura, Buzen, Japan.

Miller smoke method of introduction will ultimately supplant the cage method everywhere. If so, this will eliminate all possible danger from the candy, providing the queen-cages are burned.

We quite agree with our correspondent that we cannot be too careful; but we think he errs in thinking that paint inside of the hives will be sufficient to disinfect it. Some paints will flake off, leaving the wood clear,

just as it was before painting. Better use a torch to scorch out the inside of the hive and other appurtenances.

Neither do we recommend burning hives, bees, and all unless the disease is confined to one or two colonies. If it once gets started in an apiary, wholesale burning is too expensive, and quite unnecessary, as practically all foul-brood inspectors have agreed.
—ED.]

A JAPANESE APIARY

BY K. NOMMA

Assuming that you may be interested in learning how bee culture is enlarging even as far as the Orient, I take great pleasure in sending you three Japanese post cards. They represent a small apiary situated in the suburbs of Kokura, Japan, which is owned and managed by my sister and her husband. Despite the fact that it is still in

a primitive state, and established only three years ago, they are showing the most favorable signs of prosperity.

Inasmuch as each succeeding year is bringing more net profit, my sister and her husband have just completed a plan to start a new apiary in another part of the country.

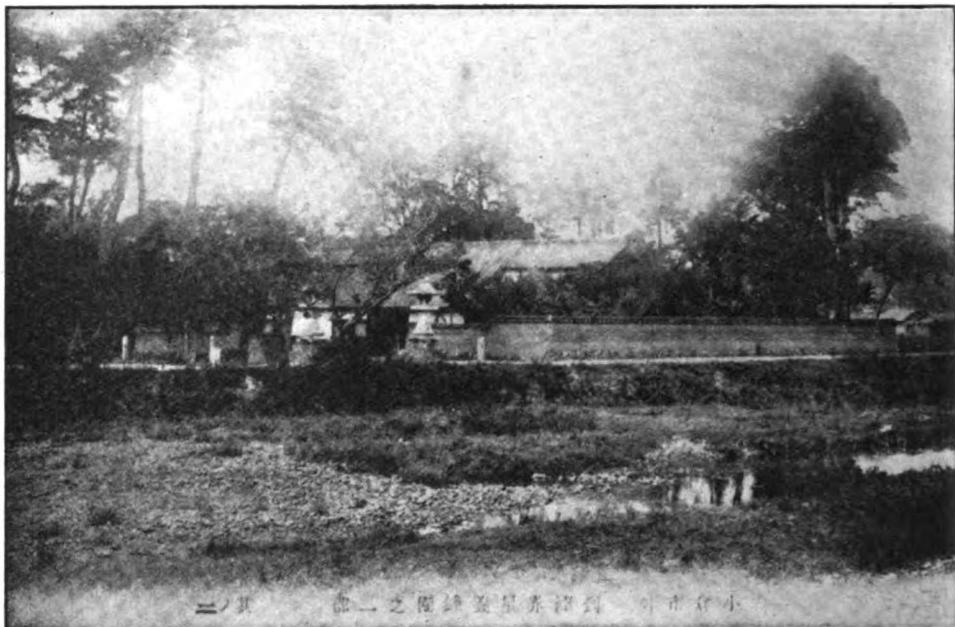
Port Henry, N. Y., Dec. 17.

THE TIME REQUIRED FOR BEES TO MATURE FROM THE EGG

BY T. J. LANDRUM

I am much interested in Dr. Miller's Straw, page 125, Feb. 15, in regard to bees hatching out in less than 20 days. I am quite sure Dr. M. has made some mistake

in his test. I have tested this thing time and again in recent years, and I have always found a few cells of *unhatched* brood after 21 days—that is, the bees didn't all



A distant view of the Akahoshi apiary in Japan.

hatch in 21 days, but a few would still be unhatched on the 22d day from the time the queen was taken away.

I had occasion to test this in transferring bees from box hives. When breaking up the box after 21 days, or on the 22d day, I have always found some unhatched bees (brood). Dr. Miller does not say that he looked at this frame ("XIX") once between August 5 and August 25.

Now, Mr. Editor, I know by experience that eggs don't always get a chance to hatch. When taken from home, and put into a strange colony, the bees sometimes take offense at this strange batch of eggs and destroy every one of them. I wish Dr. Miller would please tell us if he looked at this particular "XIX" frame at any time between August 5 and 25, and if he is sure the eggs in this frame ever reached the larval state. I am frank to say that I don't believe bees will hatch in 19 days 18 hours and 50 minutes from the time the egg is laid; and I believe if Dr. Miller had taken a peep at that frame any time between Aug. 8 and Aug. 25 he would have found every cell in said frame empty.

I expect to test this matter thoroughly this coming season, and will let you know what I find.

Atwood, Col.

Dr. Miller replies:

It's a good thing there are sharp eyes

upon us, for there are many chances for slips in conducting any experiments with bees. I know that bees will sometimes destroy every egg in the hive, but that did not occur to me when I reported the case in that Straw, p. 125. All that I reported was that the last egg was laid just before 5:05 P.M., Aug. 5, and that the cells were empty 11:55 A.M., Aug. 25. With no more data than that, there is the possibility of destruction of the eggs, and I am thankful to friend Landrum for taking up the matter.

At the start, there was no thought of learning any thing about worker-brood. It was an experiment relating to queen-rearing. I will now give the case more in detail. The comb was taken from No. 28 at 5:15 P.M., Aug. 5 (the only comb in the hive), and put into No. 91, a strong queenless nucleus kept as a sort of storehouse.

Aug. 8, it was put into No. 69, a strong queenless colony, with the express purpose of having queen-cells built. I made no minute of whether eggs were present at this time or not, and have no recollection about it, but I think it doubtful that I should have put into a hive a comb for cell-building without noticing that the eggs had been removed. Still it is possible.

The record shows that Aug. 12, at 3 P.M., no queen-cells were yet sealed. I can hardly imagine the possibility of my examining the queen-cells at this time without noticing that the worker-cells were empty, if such

had been the case, since it was a week since the eggs were laid. Still, it is not utterly impossible.

Aug. 19 I cut out the cells, and have a distinct recollection of seeing the worker-brood in compact form; and when I had cut the cells I put the comb into the upper story of No. 1 for the express purpose of allowing the worker-brood to hatch out.

It was put into that upper story with no thought of noting the time of hatching; but some time after Aug. 19 it occurred to me that here was a good chance to learn just how long it was from the laying of the egg to the emergence of the young worker. Aug. 25 I thought I would begin periodic examinations, so as to be able to say between what two hours the brood had emerged, and I supposed I was looking while it was yet certain that no young workers could have emerged. Finding every cell vacant was one of the surprises of my life.

Now, here are the things that I know. I know that no eggs were in that comb Aug. 5, 3:05 P. M., and that the eggs in it were laid between 3:05 P. M. and 5:05 P. M. It is practically certain that the queen would continue to lay in that comb, since it was the only comb in the hive, until its removal at 5:05 P.M. It is positively certain that all eggs were laid in it after 3:05 P. M. I

know that sealed worker-brood in apparently good condition was present Aug. 19. I know that not a cell of brood was present at 11:55 A. M., Aug. 25.

So I know that the time from the laying of the egg till the emergence of the perfect insect could not have been longer than from 3:05 P. M., Aug. 5, to 11:55 A. M., Aug. 25 (less than 20 days), unless the bees destroyed the brood some time after Aug. 19. Bees when in a starving condition do tear out brood, sucking out the juices and throwing away the skins; but did you ever hear of their tearing out normal worker-brood 14 days after the laying of the egg?

Besides, this could not possibly be a case of starvation. It was in the midst of the heaviest flow I ever knew. There were four stories of extracting-combs, and not a drop of honey had been taken away from the time the flow began. Is it possible that the bees tore out a single cell of that brood after Aug. 19?

I now submit the case to the jury, asking the foreman, T. J. Landrum, to consider whether there is a reasonable doubt that the time of development in this case was within 19 days 18 hours 50 minutes, and whether there is a possibility that a single cell took more than 19 days 20 hours 50 minutes.

Marengo, Ill.

C. C. MILLER.

THE CONTROL OF SWARMING AT OUT-APIARIES RUN FOR EXTRACTED HONEY

BY J. L. BYER

As stated in the Feb. 15th issue, many have written me asking questions about different phases of out-apiary work. In that issue I talked of early-spring management, leaving off operations at the opening of fruit-bloom. At this time I shall tell some of the plans I use to control swarming at out-apiaries; and right here let me ask you to notice that I use the word "control" instead of prevention; for, notwithstanding the bulk of those who have written me ask for means of prevention of swarming, I frankly confess that I have yet to learn a satisfactory plan that will work in all kinds of seasons, with all kinds of hives, and with all kinds of bees. As many are already aware, I have bought nearly all the bees we have in our different apiaries; and while I regret it, yet the fact is we have a number of different kinds of hives in use. In one apiary there are over 100 eight-frame L hives; in another the hives are all ten-frame Jumbo, while in another there are over 200 colonies on frames similar to the Jones, only somewhat shallower.

In so far as the eight-frame Langstroth apiary is concerned, it is needless to say that this is the one that gives us the most trouble in the matter of controlling swarming; and when one has a lot of bees in a hive of that dimension, certainly drastic measures have to be taken to prevent wholesale swarming, if the colonies are all strong at the opening of the clover flow and if the yield of nectar is good and lasts any time at all. To make the matter short, we have found that the only thing to do in such cases is to take away the major part of the brood before the swarming fever shows, substituting full sheets of foundation in place of combs removed. If the colony is strong I recommend taking all but one comb of brood away; and if there are no signs of swarming at the time of operation, these brood-combs can be placed above the excluder in the super. If the flow is on, as it should be when doing work of this kind, I place a super of comb next to the excluder, and then another story with the brood in on top of that. With this brood so far

away from the old brood-nest, queen-cells will be started in the majority of cases; but they can be cared for easily later on. I have had queens hatch in this upper story, and yet there would be no swarming; but some have reported otherwise, so it does no harm to look through these combs eight or ten days afterward.

One great objection to this plan is that, if there is any honey of inferior quality in these brood-combs, it will spoil the quality of No. 1 clover honey when the extracting is done. This is a question that every bee-keeper will have to decide for himself, as locality and management of colonies previous to doing this work have a great deal to do in determining results.

The advantages of the plan are that it nearly always prevents swarming for the season; you keep all the bees in the one hive, and at the same time get a lot of new combs drawn out each year. More than anything else, it means a crop of honey if there is any to be had, as no other plan that I have any knowledge of will give a greater surplus. This plan is old, and was first given by a southern beekeeper whose name I can not recall.

With four or five apiaries with the large Jumbo hives, many might think we should have no swarming when running for extracted honey; but unless due precautions are taken, these same hives will give us lots of trouble as past experience has shown conclusively. One of the main points to be considered in heading off the swarming desire is to give lots of room early, enough in the season so that the bees will have supers to enter just as soon as they are at all crowded in the brood-nest. Our greatest trouble with swarming during the past five years has not been with the very strong colonies, but, rather, with those not strong enough to super at fruit-bloom. They are left till the opening of clover, and perhaps by that time they are a bit crowded, and instead of going into supers when given at that time, they make preparations for swarming. When I find colonies in that condition I generally raise one or two frames of brood into the super, over a queen-excluder. Now and then we may get caught with a bit of chilled brood if the weather turns cool suddenly; but, all things considered, I would sooner take a little risk that way, and be sure that the colony is not going to get the swarming fever so early in the season, and probably knock out all chances of a crop of honey, particularly if the season is very short.

Colonies that have entered the supers during fruit-bloom rarely give any trouble at the opening of clover, so the idea should

be to get all in that condition as soon as possible. Sometimes we get caught in fruit-bloom, and find extra-strong colonies preparing to swarm at the time we are clipping queens. There are many plans of dealing with such colonies at this date; and if brood has to be taken away to stop the notion of swarming, one can always at that time find many places to put it. I certainly break up the swarming fever at that time in some way, as one has no time to be tinkering with a few colonies at that busy season.

Last spring I moved two carloads of bees; and during my absence the clover started to yield. One apiary was unusually strong with bees for so early in the season, and, before leaving home, I had clipped the queens during fruit-bloom, and given a full-depth Jumbo super. When I came home and got to this yard I found three-fourths of the colonies with the super full of fruit-bloom and early clover honey, and about all with queen-cells started. The bees were nearly all of Carniolan blood, and I realized that my absence had put things in pretty bad shape at that place. I hastily decided on a plan; and whether it was on account of certain conditions of honey-flow, or from other causes, I knocked out about all the swarming for the time being, and in the end got a very large crop of honey. I hunted out all the queens, and caged each in a wire-cloth cage about $\frac{3}{4}$ inch in diameter and 6 inches long. The cage was placed between the brood-combs beneath the excluder, two combs being spread apart to allow the cage to go between. Each comb was taken out and examined thoroughly for cells, the bees being shaken in front of the hive to make sure that no cells were missed. Abundance of room was given above, and they were left alone for eight days, when the same process was gone over and all cells cut out again. The old queen was liberated, and, much to my surprise, the swarming fever was done for, in spite of the fact that the bees were Carniolans. I always think that bees having a caged queen never work so well as those in normal condition; but in this instance, for some reason, it seemed to make little difference. The flow was very heavy, and that may explain the matter. Of course, this plan meant a lot of work: but it was a desperate case; and if I had not been away on this moving trip, supers would have been given and the trouble avoided.

After colonies are all storing in supers, if abundance of storage room is given there should be no swarming, particularly if the bees are Italians and the hives at least as large as the ten-frame L. In my own case I prefer the ten-frame Jumbo, believing that



High trees that swarms did not alight on, and why.

better results can be obtained with less work than with a smaller hive, in so far as extracted honey is concerned. During the season, if you suspect swarming in any colonies the only way to be *sure* of the matter is to pull off the supers and examine the brood-nests. Of course, when there are two or three full-depth supers on each colony, this work is easier described than done. However, I find that many are like myself on this question; for during the height of the season, when one is jumping around about 16 hours of the day, such a thing as

going through a whole apiary looking for queen-cells is out of the question. One soon gets to know from external conditions, by the progress being made in supers, and in various other ways, how to diagnose pretty well without tearing into the center of the brood-nest at every visit. We lose very few swarms each season — possibly not more than two or three at each yard; and this, if nothing else, leads me to be more than ever in favor of using large hives for out-apriary work.

Mount Joy, Ont., Can.

HIVES SO LOCATED THAT THE SWARMS ALMOST INVARIABLY SETTLE ON LOW SHRUBBERY

BY RUTH C. GIFFORD

In the spring of 1912 I moved my bees to a new location along the north side of the front yard, and directly south of the garden. Since then I have had the pleasure of seeing every swarm except one (which sailed to the limb of a fine tree) settle on the blackberry-vines in the garden. In the summer of 1912 I watched my bees closely, and found that, with the exception of the swarm above mentioned, they all settled on the berry-vines. This summer I again watched them closely. The result was the same, for they again settled on the berry-vines.

The position of the bees in relation to shade and the distance from the blackberry-vines must be the cause of their settling on the vines. Before I moved them to this location I always had to climb trees for the

swarms, and several times even had to use a forty-foot extension ladder.

The lower half of one row of blackberry-vines is 66 feet from the backs of the hives. There are also some trees near by.

Unfortunately the pictures do not give a clear idea of the amount of shade, because they could not be taken until the last of October. Some of the hives stand in dense shade, but not all the time. After half-past eight there is a dense shade *in front* of them all day, and they don't get much sunlight between half-past eight and half-past ten: but after that they are shaded by the side branches of only one tree.

During the swarming season I went through the colonies carefully every ten days. I cut out queen-cells twice from colonies which had them, gave extra venti-

lation, and empty combs where necessary. When I found queen-cells the third time I noted it in the hive-records, closed those hives, and left them alone until they swarmed. I have found that, if colonies persist in trying to swarm, after the queen-cells have been cut out twice, and they have been given extra room, they do far better work if allowed to swarm in the natural way. However, I watched the above-mentioned colonies closely, and was rewarded by seeing a swarm come out of every one of them, and settle on the blackberry-vines. After I hived the swarms I followed the usual method of placing them on the old stands, and moving the parent colony to one side. Of course the weaker colonies were slower in building cells and attempting to swarm than the stronger ones.

I don't know whether the bees would settle on a row of small trees as readily as they do on the berry-vines or not. Their liking for the latter is at times almost uncanny.

One day this summer I saw three swarms come out about twenty minutes apart and quietly fly over and settle on the blackberry-vines. I usually find the swarms clustering around the post and clinging to all the canes. This gives them more "standing room" than the limb of a tree, and does not compel so many bees to cling to a few. I also notice they usually cluster in such a way that the vines shield them from the direct rays of the sun.

I expect to examine each colony twice next summer for queen-cells. Both times I will give empty combs where they are needed. Then I am going to keep them

supplied with plenty of super room and leave them alone. The colonies that are determined to swarm will swarm anyhow, or else sulk; and I can hive a swarm from a blackberry-vine in less time as well as with more satisfactory results than I can manipulate a colony to prevent swarming.

North East, Md.

[In locating an apiary there are several considerations to be taken into account. First of all, the bees should be placed as far as possible from a line fence or a general highway. In either case, the streams of bees in going to and from the fields in the height of the season are liable to encounter teams of horses and men, and sometimes this causes trouble.

Another important consideration is shade—not too much of it, but just enough to screen the bees during the hottest part of the day. In the securing of that shade, as our correspondent points out, it is very desirable to place hives near low shrubbery to catch the swarms. If there is no such shrubbery, and tall trees are close at hand, there will be some unpleasant experiences in trying to get swarms down from high places; in fact, some of them will be entirely inaccessible, and will be lost. It is a fact that low shrubbery, if near the hives, will attract a large percentage of the swarms; and when a swarm has once alighted on a bush or limb, that bush or limb will probably, on account of the odor, attract other swarms. This we have proven out time and time again in the case of our grapevines, that catch practically 99 per cent of our swarms, the remaining one per cent going up on our tall evergreens.—Ed.]

THAT APRIL 1ST COVER PICTURE; LUCK IN BEEKEEPING

BY F. GREINER

I want to congratulate you on the fine cuts exhibited on the title page of the April 1st number. We have at different times in the past been searching for good representations of honeybees, but have always turned away in disgust from any thing that was offered us. In the line of a queen-bee we found there were seven abdominal rings in the best cut we could find. It would seem as if an artist (?) putting out work like that would hide his head. Representations of bees and drones found in our text-books are so faulty that it requires an expert to find features resembling the real thing. In view of all this it does me a lot of good to feast my eyes upon the title page of the April 1st number of GLEANINGS. It is true that there

is not present in these pictures that symmetry found in engravings and woodcuts of former efforts; but that only increases the interest in them, and enhances their value. The only defect seems to be in the drone, the abdomen being too short, as you have pointed out in your editorial; and I hope that in subsequent trials you will succeed in eliminating this defect by selecting a specimen with a fuller abdomen.

QUEEN NOT ALWAYS TO BLAME; SOME QUESTIONS RAISED.

The idea that the queen is not always to blame when the colony is not coming up to the mark is one I have entertained for a great many years. I had at one time quite



A tight board fence that is too much of a good thing; a section of a bee-tree in the foreground.

a little controversy with our lamented friend Hutchinson on this question, and he finally made the concession that there was quite a little in this worth ferreting out. Whatever we may think and say about luck in our enterprise, nevertheless there is such a thing as luck. There is not one among us who can control all and every condition that has an influence on the net result. Even if we were smart enough to bring each colony up to that point of greatest populousness just at a certain time, then we might fail in judging when that time would be the most appropriate and advantageous, for seasons are not always the same.

Who can be held responsible for the drifting of bees from one hive to another? Who is wise enough to start his bees in a certain direction, so that they will find certain honey-secreting blossoms? Many other questions suggest themselves here. We have had certain colonies do as good as nothing one season, and the next season they did wonders. Three little dwindled-out colonies were united early in June, and outdid any thing else in the yard that season. We are a long way from having solved all the problems in beedom.

Naples, N. Y.

A DOSE OF BEE FEVER; SOME DISCOURAGING EXPERIENCES, BUT STILL HOPEFUL

BY W. H. DREYER

I send you a photo of a section of an elm-tree containing a swarm of bees hauled to my home June 3d. It was cut on the W. S. Blakesley farm, about three miles west of here, and was some job before it was safely landed as you see it in the picture, with a Langstroth body over the top cavity, leaving the knot-hole for an entrance.

I have kept bees for about ten years, and have had enough ups and downs in the business to take the wind out of almost any one; but beekeeping has something about it that continues throwing fuel on the fire, even if it consumes some of our time and capital.

When I started beekeeping I bought my

first ten colonies in box hives of the man on whose farm this bee-tree was cut.

My first loss was almost entirely from robbing. I wanted to taste some of their honey, and make a bad spill of it, getting all my bees excited, and inviting many others.

But this was only an incentive toward getting hold of bee-books and journals. After reading the many possibilities on the subject my enthusiasm grew instead of dying. Langstroth hives were bought, then came 4 x 5 sections and fences, and all the up-to-date things that go to make beekeeping a pleasure. After laying in a good supply of these things, enough to manage

50 stands for comb honey, along came those bad clover years, idle supplies, hard winters, moth-eaten combs, and the like; but to top matters off, I was completely cleaned out in the winter of 1911. There I was, beeless, but not hiveless (I had the hives right).

In the photo you will notice that \$75.00 fence for protection. The winds got over it somehow all the same; and those chaff hives, about 40 in all, were of no avail—certainly trying.

The fall of 1912 I again bought 25 colonies; and after tucking them away in their winter quarters as carefully as I knew how I was again ready for a new start.

How did I spend the winter of 1912 while those bees were sleeping? Let me assure you I did some tall thinking and also some reading that often carried me into the *wee* hours of the night.

I already had requeened my bees with young queens, for that is a settled matter with me—the first step toward success, all things considered.

The next matter I settled on was single-walled hives to be set in winter cases for protection in winter. My bees never breed up fast in chaff hives, but always show up well in single-walled.

No Alexander feeder could be attached to them as to the single-walled, and many other manipulations are all out of the question with double-walled hives; and, before I forget it, let me state that the bees tucked away in winter cases with five inches of packing all around were as dry as a chip when I peeped into them April 1.

AFTER REMOVING THE CASES.

About this time in spring I equalize stores, tack over each hive a sheet of heavy building-paper, which holds every bit of

heat in the hives. An Alexander feeder is placed underneath, and left alone until about May 1. Then I equalize brood, to be repeated about May 18 or 20.

Last spring my bees were in splendid condition managed on this system.

In closing allow me to say that the outlook last spring was great. Anywhere one looked the ground was white with clover; but I did not see a single bee on the blossoms. Basswood was not touched by bees so far as I know; and had it not been for sweet clover I should not have a pound of honey. This yielded about 900 lbs. on 18 colonies. I have increased my yard to 60 colonies, and hope to have an outyard next year if things are promising.

Findlay, Ohio.

[The winter when you lost so heavily was severe all over the United States. Even if your bees had been in winter cases your loss probably would have been about the same. Outdoor bees suffered everywhere, no matter where they were kept.

One lesson we learned during that eventful winter was that a tight board fence is not as good a windbreak as trees or shrubbery. The objection to a solid fence is that the wind strikes it, glances upward, then dives downward, hitting some of the hives; it starts counter-currents and whirling eddies. A picket fence is better; and better still would be two or three picket fences, one in front of the other, and about four or five yards apart; but as this would be expensive, shrubbery answers as an excellent substitute. A screen consisting of farm buildings, barns, houses, etc., if high enough so the winds will skip clear over the hives, are excellent. Behind such a screen, bees in single-walled hives will often winter nicely.—ED.]

BEEKEEPING IN THE RED HILLS

BY J. J. WILDER

Seemingly, if there is any section in our great country where beekeeping would be a failure or a total impossibility it is in the great Red Hill belt; but no; it is profitable there, and is progressing; yet the amount of honey-plants there is very small and widely scattered. Such is the case in middle Georgia, where some of our most progressive beekeepers are located, such as Mr. J. R. Durden and W. L. Wilder, of Macon, Ga., and John W. Cash, Bogart, Ga.; the latter operating over 20 apiaries.

The forest in this great belt consists

mostly of second-growth pines. The land, lying very rolling, was worn out and broken up in gullies many years ago, and this growth of pines came up on it; but along these larger gullies and branches and creeks are a good many scrubby poplar-trees, some sourwoods and wild plum scattered here and there; and along larger streams are some tupelo gum; but there is not much of this. On the terraces and around the patches that are in cultivation, and the old fields that are lying out, there are considerable goldenrods and asters growing which yield



Apiary of J. R. Durden, Macon, Ga., and his scheme of roofing-paper to take the place of shade-boards.

some nectar in the fall. Also, in some localities the cotton-plant yields some honey, all of which go to make up a little.

As a rule the beekeepers do not keep many colonies in an apiary or one location, and scatter them out well over the country. These beekeepers are doing just as well as those who are seemingly in far better sections or where the honey-plants seem to be abundant. The point is this: After all, there is not much difference in our country, up one side and down the other, when it comes to our industry and the possibilities of it; and the more I know of beekeeping from experience and observation, and through correspondence, the more I am convinced of this fact; and if all beekeepers could realize this there would be many more contented ones in our ranks, and there would not be so many disappointments caused by pulling up and moving here and yonder in search of better locations, and resulting in failure, etc. As a rule we are a nervous, restless set, always on the alert for the good spot which is always just ahead. This ought not to be, for we ought to settle down and be contented so far as the better section is concerned, and spread our bee business out over the country around us, and progress and be happy; for there is but very little difference and not enough to pull up and go after.

AN APIARY AND ITS OWNER.

The photo here shown presents to our vision an ideal apiary on the side of a red

hill owned by Mr. J. R. Durden, of Macon, Ga., whose form also appears. This apiary is located out in the open, surrounded by waste land that is lying out, which has a good growth of goldenrod and asters on it, and also some shrubbery. It will be seen that no artificial shade is used to be in the way of the apiarist, but a number of different kinds of covers are used which can be easily seen, and I believe almost every kind sent out with hives. He says the cheapest cover sent out, or a very cheaply constructed one, is the best if it is covered with a good grade of paper roofing, and hives set in the open will not need shade-boards, etc., if put on in the manner he has put it on, which can be easily seen. It is cut a little wider and longer than the cover, and is tacked well at the ends, and one tack put on either side, so as to hold it down. Caps are used with the nails so as to keep the heads of the tacks or small nails from working or pulling through the roofing.

These bees are located on an old apiary site. Perhaps the first modern out-apiary for hundreds of miles around was located on this site. Swinson and Boardman have kept bees here for many years, and so did Mr. Judson Heard; also Mr. S. S. Alderman; and Mr. Durden has had bees on it for a number of years.

THE CAUCASIAN BEES.

As this race of bees has come into our midst to stay, and so far has proven a great blessing to our industry in nearly every

section or locality these bees have been imported, and as there is no reason why they should not be carried into sections where they are not known, and at least given a fair test, it may be that they will prove a great blessing to our industry everywhere. When they first came about, there were some reports from those who had given them only a very limited trial that were not in their favor; but such reports have long since discontinued, and nearly all if not all are in their favor of late years, since they have been sufficiently tested; and I believe such will be the case in nearly every place they are tried. So if I were the only beekeeper who has given them a thorough test and found in them a great superiority over any of the other races of bees, I would be the last man to pen another line in their favor; but hundreds of beekeepers from almost all parts of the country report the same thing after testing them. Now, I feel safe in recommending them to those who are not satisfied, or who do not obtain good results from the bees they have at present.

I obtained three of the first Caucasian queens the government imported; and the second year I had them I had seen enough in their favor to head all the colonies in my home or main yard with queens reared from them; and from time to time I have established from this yard many other yards, and have done no little requeening with this stock, with the result that it has revolutionized beekeeping with me; and adopting this stock has enabled me not only to operate several hundred colonies, but even several thousand colonies. So I can not say too much in their favor from my own experience as well as that of others; and if I am a success as a beekeeper it is due to our government for sending me the foundation stock of this variety of bees; for I had already reached the climax—yes, and went a little beyond if possible—with the Italian and other varieties of bees. I will not assume the responsibility of saying that these bees are just the thing for every beekeeper in all parts of the United States; but while reports from some beekeepers in nearly every section have been made, all have been in their favor.

If it were left to the writer to be the judge he would quickly and frankly say that the Caucasian bees rank higher than any others that have ever been imported into our borders for commercial use.

It is said that almost any kind of hive will suit almost any kind of beekeeper; and the same might be said in reference to bees. But the highly ambitious beekeeper who

wants to make the most of his bee business, and a mark in our ranks, and number his colonies by the thousands, could not even think of adopting any other stock, because they have greater merits or qualities.

THEIR GOOD OR BAD QUALITIES.

Their good or bad qualities, as the writer has found after some years of experience with them from two colonies to two thousand colonies, are these: First, there has been but one very bad quality brought out against this bee, and that was that it popularizes the interior parts of the hive body; but this was not quite so bad as the wads or balls of brownish glue found about in the hive which almost put an end to manipulating the interior parts of the hive. Well, this, of course, was a very serious objection, and hence came the cry against them.

Another slight fault found with them was that they build too much burr and brace comb. But what about these bad qualities in this bee to-day? They have been almost eliminated, and most of it done naturally, too—that is, they have nearly cleared themselves of this objection, or to such an extent that it is no longer an objection. I have done but little if any toward breeding this bad quality out of them; but I learned that if I would give them plenty of ventilation about the bottom of the hive, and plenty of storing room, that colonies most inclined would make only a small deposit of this; and then, too, about the entrance, where it could be removed easily, or would not interfere with frame manipulation if left.

But briefly, what about the good qualities of this bee? Well, I would say this: They embrace every thing that could be expected of any bee—yes, and far more, which are: They are gentler, and far less furious at all times; gather more honey, and give it a much better body, especially if it is inclined to have a thin body, which is common among different kinds of honeys. They will also give it a much better finish in capping. This feature alone is a redeeming one in favor of this bee, for I get 2 cts. per lb. more for the honey they finish in one-pound sections. The capping is beautifully white, and in most cases has a very fine silk-like finish, and in many cases white veins running through the cappings from one side of the sections to the other, running through it like veins in a human body. Then they are less inclined to swarm; build up earlier in spring; queens more prolific throughout the season; requeen themselves more often; in other words, they do not tolerate their old queens as do other races

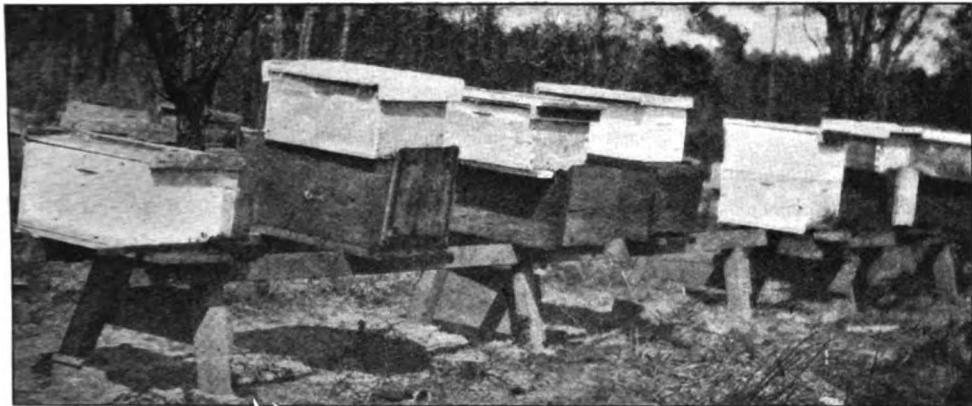


Fig. 1—A. B. Marchant's scheme of transferring so that the bees do practically all the work.

of bees, and it is more hardy—that is, it will live longer under the greatest strain of its life.

Lastly and naturally, an apiarist can care for more bees with less expense, so far as labor is concerned, and at a much greater profit if he has this bee.

Cordelle, Ga.

[The reports that have come in to our office regarding the Caucasian bees do not agree with those that have come to Mr. Wilder—that is to say, those who have tried them to any extent in the North do not seem to be favorably impressed with them. We tested them quite thoroughly, as we thought, at Medina, and were compelled to get rid of them. They are the worst bees we ever had for out-apriary work, as they swarm in season and out of season. In fact, they are much like the Carniolans in this respect, with the further disadvantage that they are bad propolizers, and excessive builders of brace combs. We were very glad to get them out of our yard.

But there is one thing in favor of the

Caucasians, and it is also true of Carniolans—they will breed up early, and they will breed when Italians cannot be coaxed. This very quality might make them desirable for Mr. Wilder in the spring.

But we should like to know how he handles them in the swarming season. If our experience means any thing there would have to be a man at every yard, and that would be expensive. We operate with an automobile which carries our crew with foreman from yard to yard. If an occasional swarm comes out, and is discovered by the farmer or his family, a telephone call will bring one of the boys on a motor cycle, to take care of them. But we have comparatively few swarms, because we use Italians. With our system of management, which, as we figure it, is more economical than to have a man at each yard all the time, we cannot tolerate Caucasians nor Carniolans; and as a general thing we have no difficulty in getting Italians to breed as fast as they ought. A colony that runs to excess in brood-rearing is likely to have chilled brood. in the spring.—ED.]

A NEW SCHEME FOR TRANSFERRING FROM BOX HIVES THAT PRACTICALLY ELIMINATES ALL THE LABOR CONNECTED WITH IT

Charlie Repp, of the Famous Repp Brothers, Fruit-growers of New Jersey

BY E. R. ROOT

When I visited the boys at our Appalachicola apiary in March, our foreman, Mr. Ernest Marchant, in the course of our conversation relating to the various methods for making increase, remarked:

"Say, Mr. Root, you ought to see father's method of transferring from box hives into modern ten-frame dovetailed hives. It is the slickest scheme I ever saw. You must

be sure to see dad and let him explain it; and do not forget to take along the camera."

The next day we met the senior Mr. Marchant, and with a launch proceeded up to his Sumatra apiary, where the plan is in successful operation. Fig. 1 shows a row of hives in process of treatment; and Fig. 2 is a still closer view of the same thing.

You may say at first glance, that this

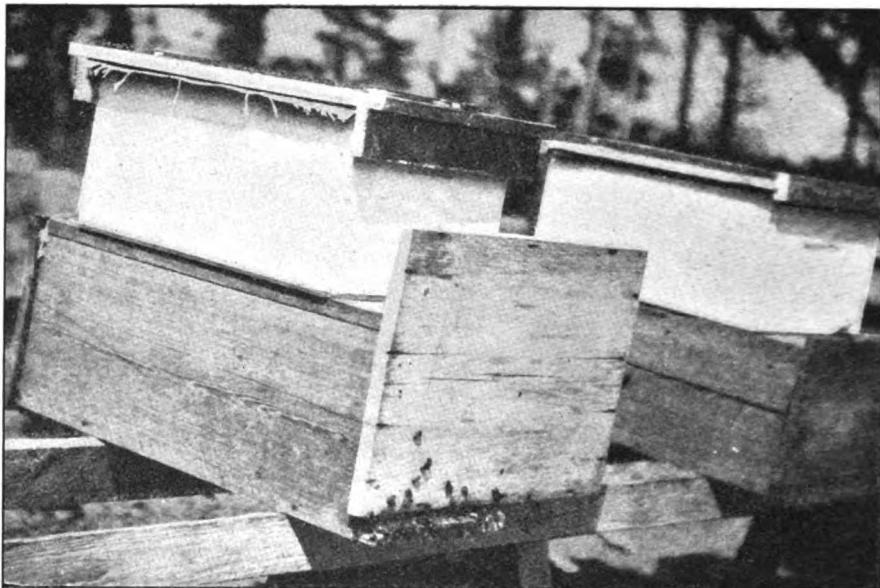


Fig. 2.—Marchant's scheme of transferring. An empty super of drawn comb is placed over an auger-hole in the box hive; after bees and queen go above, a piece of perforated zinc is placed over the hole.

is precisely the same thing that J. J. Wilder described in the *Beekeepers' Review* for March. It certainly looks like it; but, as a matter of fact, it is very different.

While I was adjusting my camera Mr. Marchant went on to explain that he had bought up a lot of old box hives, as he found himself short of bees, paying from one to two dollars for the same. To transfer in the old-fashioned way, and fit the combs into frames, was out of the question. Even the Heddon short method described in our A B C and X Y Z of Bee Culture involved too much work.

"When I get ready to transfer," said Mr. Marchant, "I prepare as many eight-frame supers with empty combs as I have bought hives to transfer. I now approach one of these, lay it on its side, and blow a little smoke in at the bottom. I determine, as exactly as I can, how far down the brood comes. I saw off the hive, combs and all, as close to the brood as I can, and tack a board up against the sawn-off end. I next bore an inch auger-hole in the side or what is now the top, and then place over it one of my regular supers of combs and the job is done for the time being."

"But," said I, "how are you going to force the bees, and, more important than all, the queen, into the empty super?"

"They will go up all right when black tupelo is coming on, and providing I contract the hive capacity of the old gum by sawing it off as I explained."

"Yes," I said doubtfully; "and if the bees go up how are you going to catch the queen?"

"That is easy," said Mr. Marchant. "With a contracted brood-nest and a lack of room, and honey coming in, the bees are bound to go above through that hole, for we know that when honey is coming in bees will occupy empty combs at once."

"But the queen?" I interposed.

"Oh! she will follow the bees."

"But suppose she does," I asked; "will she not go back again into the old combs?"

"No, sir. A few days after placing the dovetailed hive on the old box I make an examination. As soon as I find eggs and brood in the upper part I put a piece of zinc over the hole. In 21 days all the good brood below will be hatched. I now remove the old hive and add another super to the transferred colony, and place the old gum near the transferred hive, and let the bees rob it out. When that is done I melt up the old combs and convert the box hive into kindling-wood."

In proof that such a scheme was working well, Mr. Marchant showed super after super where queens and bees had gone up into the upper hive.

"But," I said, "Mr. Marchant, will this work this way every time?"

"Yes, if the empty comb below the brood in the box hive is cut off, and providing, also, that honey is coming in from some minor sources."

The fact that box hives with black bees can be bought in many places in the South for one to two dollars a gum, makes this method particularly attractive and simple, where one has a preliminary source of honey coming in so as to force the bees above.

The Wilder method of transferring appears to go a good deal like the one described by Mr. E. D. Townsend some years ago in *GLEANINGS*.

CHARLEY REPP, THE APPLE-GROWER, AS A TEMPERANCE MAN; BEES AS POLLINATORS.

In our issue for April 1, page 243, I spoke of my interview with the genial Charley Repp, of the famous Repp Brothers, the apple-growers of New Jersey; and in our issue for Aug. 15, 1913, I gave quite a complete description of the fruit-growing operations of these three brothers. It will be remembered that Albert Repp is the grower of the apples and other fruit. Charles Repp is the one who operates the 10,000-barrel storage-plant and ice-making plant; and Joseph Repp is the merchant in Philadelphia who sells their product when

the market is ready. The Repp Brothers have given some very strong testimony showing that they must have bees in their orchards; and they *have* some orchards, for they have 450 acres in Gloucester Co., N. J., that are devoted to the raising of fruit. Some of the strongest testimony that has ever been published showing the value of bees as pollinators has come from Albert Repp, page 562, Aug. 15, 1913; also the *Country Gentleman* for May 24, 1913.

It seems that the Repp Brothers have extended their field of operations in that they now have a cucumber farm at Delray, on the southeast coast of Florida, and a great success it is. When the boys bought land down in that part of the country they were told that it would not be possible to grow cucumbers there, on account of the insect pests; but Albert Repp remarked, "Why not kill them off with insecticides in the form of sprays?" and they did.

On the Repp Brothers' Florida farm there are acres of cucumbers that are being grown successfully, and the probabilities now are that, as they have blazed the way in showing what can be done, winter cucumbers will be grown in Florida at a price considerably below what the northern greenhouse growers can produce them. The Repp Brothers are already doing it. I merely mention the incident here to show that the boys, like their father before them, are in the habit of doing what other people said "couldn't be done." That's what makes genius; that's what makes success.

Mr. Selser wrote me while I was in Bradenton, saying



Fig. 8.—Charlie Repp, of the Repp Brothers, the famous apple-growers of New Jersey. "Now fire away with your questions."

that whenever I went over to the east coast on any of my travels I should be sure to see Charley Repp, who was looking after their cucumber farm at Delray. He would arrange, if possible, to have Mr. Repp accompany us on our trip south, as he felt sure I would be glad to get some notes on the value of bees as pollinators. To make a long story short, our cruiser and party arrived in due time at Delray, and Charley Repp was at the dock, and soon piloted us to his cucumber farm of which I have already spoken.

"Bees? Oh, yes!" he said; "couldn't raise cucumbers without bees. There is a colony or two, over there, and there are a lot more of them about half a mile away."

"You are positive that bees are necessary for cucumbers?"

"Yes, I am sure of it," he replied.

As we walked down to the dock I said, "Mr. Repp, I am greatly interested, as you may surmise, in this matter of bees as pollinators, and ever since I read that write-up of you boys in the May 24th issue of the *Country Gentleman*, where you gave such testimony for the bees, I have been wanting to see one of you and ask questions."

On arrival at the boat we took some camp-chairs and sat on the upper deck, and then began our interview. After Charlie had seated himself in the camp-chair that shows in Fig. 3 he said, "Now fire away with your questions."

"Say, Charley" (for I had become well enough acquainted with him by this time to address him thus familiarly), "how many bees or colonies does it take to pollinate an acre of apple-trees?"

"Oh! ask me something easy," he replied, with a merry twinkle. "I can't answer that, as so much depends on the size of the trees and the kind of season."

"Well, *about* how many?" I asked.

"I don't know; but I will tell you this much: We can't have too many. The more bees we can have, the better."

"Why?" I asked.

"Because," he answered, "in some seasons the flights of bees are limited. Bees can't pollinate during wet or bad weather; and during the few good hours of flying weather, of course we need a large number of bees."

"But I have heard it said that there are certain varieties of apples that are self-pollinating—for instance, the Baldwin, and that the bees are not needed on them."

"Possibly," he replied. "We can grow self-pollinating apples; but the varieties are very limited. Bees are necessary to increase the varieties. In order to make apple-growing a success, we must grow the variety that

is best adapted to the climate and soil. Those we grow require the agency of the bees. We can't grow the Baldwins, but we can grow the Winesap, and the latter needs bees."

"How about the value of bees on peaches and cherries?"

"I do not think they are quite as necessary on these blossoms; but apples must have them."

"Well, now, Charley, I have felt that the spraying of trees is a necessity, and that pruning is also a necessity, but that bees are only secondarily important."

"But why are not bees a necessity?" he replied. "We simply can't grow apples without bees—that is, some varieties at least. We can't dispense with spraying or pruning, nor can we with bees."

HOW THE LIQUOR PEOPLE WERE GOING TO "GET" THE REPP BROTHERS.

"To change the subject, Selser tells me that you boys are strong temperance men; that you have been active in the fight against saloons—so much so that you have incurred the wrath of the liquor people, and that they have threatened to get you. Is that so?"

"Yes," he said, "we have no use for the liquor business, and fight it every chance we get."

"I understand that one of the liquor agents threatened to put you boys out of business."

"Yes, but they did not scare us very much."

"What were they going to do?"

"The liquor agent said that they were going to put out mammoth orchards next to us and undersell us. 'We will get you,' they said, 'for you can't interfere with our business without getting into trouble.'"

"What did you say?"

"I told them I would rather they would raise apples than to raise hell. Then they told me they were going to put up a mammoth ice-plant and make ice cheaper than we could. I told them I would rather see them make ice than to make bums. Then they said they were going to put up a large cold-storage plant and store apples, and then undersell us. I told them I would rather see them fill a cold-storage plant than a jail."

"Did they try to 'get' you in any other way?"

"Yes, they went after our bankers and tried to get them to pinch us. But our bankers were our friends."

"Did they start their apple-orchards and cold-storage plant?"

"Naw!"



A city beekeeper standing beside his banner hive.

SOME BEEMEN I HAVE KNOWN; A SUCCESSFUL "BACK LOTTER" RIGHT IN THE CITY

BY WESLEY POSTER

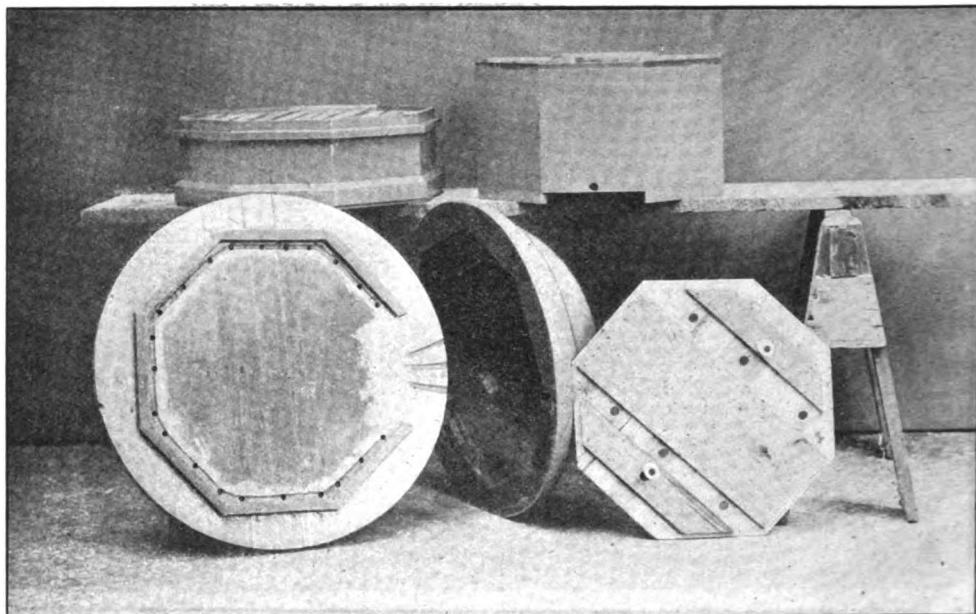
I submit here two pictures that show Mr. J. F. Lyman, of Boulder, Colo., among his bees. The source of his honey-flow is entirely from mountain flowers and sweet clover. The mountain flowers furnish nectar early in May and June, and the sweet clover in July and August. Mr. Lyman is a city beekeeper. He lives right in the city of Boulder, and his little apiary of a dozen colonies is about half a mile from the foot-hills. The sweet-clover bloom upon which his bees work grows along the roadsides and vacant property in the city of Boulder. Mr. Lyman sold over one hundred dollars' worth of honey from his nine colonies (spring count), the past season. He is the baggage-transfer man for the Boulderado Hotel, and sells the hotel a large part if not all of his surplus crop.

His crops have been remarkable to me because of the lack of suitable bee-range. Last season nearly 500 colonies of bees were located within the city limits of Boulder. In some seasons it seems a location can hardly be overstocked, while other years it is very easy.

Mr. Lyman is shown beside his banner hive. He is using this photo postcard to send to his friends and honey customers. It should stimulate consumption, for it is an example of stimulated honey production.



Some comb honey produced by a back lotter right in a city where there were 500 colonies in the city limits.



Hake's octagonal hive dissected. The picture combines the complete outfit, consisting of brood-chamber, super, super-cover, bottom-board, and hive-cover, painted with deck paint, which gets hard and water-proof like hard enamel.

Of course Mr. Lyman is an enthusiast, but does not contemplate becoming a specialist right away, at least. He knows from ex-

perience that all seasons are not as favorable as the last.

Boulder, Col.

AN ORNAMENTAL OCTAGON HIVE FOR LAWN PURPOSES

BY CHARLES Y. HAKE



Hake's ornamental octagon hive for lawn display.

I present here several pictures of a home-made hive of octagon shape. This hive is used for forming nuclei for increase in the early part of the season. It is always in use. I have a strong colony wintering in it. The small open corners are used for feeding. It contains a super with five regular shallow extracting-frames, and six small frames one-half the size shown in photo.

The brood-chamber takes regular half-sized Hoffman frames. Full capacity would be nine regular frames. In this way the nuclei never go to waste, and are always returned to the hive when not in use.

This peculiar-shaped hive makes an attractive ornament for my front yard. I have several real old-style earthen hives, one shaped somewhat like the old straw skele, and another circular one in two parts, a brood-chamber and a super, bell-shaped, with a large handle that lifts off.

York, Pa.

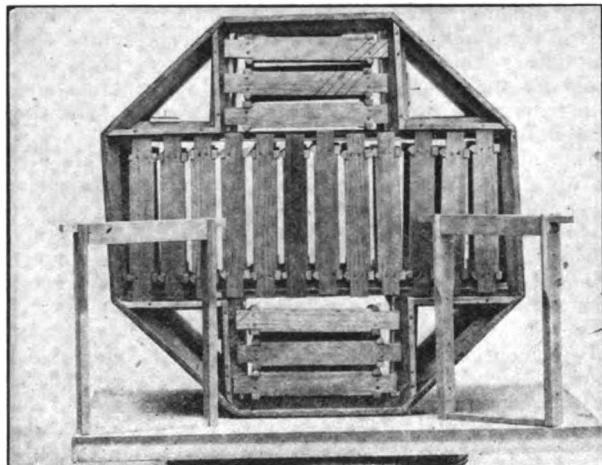
THE HONEY-EXTRACTOR AS A NECESSITY TO THE COMB-HONEY PRODUCER

Some Timely Hints on Spreading Brood

BY THE OUTLAW

One of my first impressions in comb-honey production was that the extractor was unnecessary; that extractors were only for those who make a business of producing extracted honey. That idea is something, however, I have since disproved. In every locality with which I am familiar, and for the benefit of the skeptic, I will state that I am somewhat familiar with comb-honey production from the Atlantic to the Pacific, and from the northern to the southern boundaries of the United States; that I consider that all the comb-honey producers should own and make use of an extractor; for there are times in almost every season in every locality when an extractor is necessary to get the best results from an apiary. The matter that brought this subject to mind was when I overhauled my colonies of bees on the roof. They had received no attention since about November 1, at which time I removed the super, thereby reducing them one story. On examining them about March 1st I discovered that they had filled every cell possible with honey, and that the brood space was confined to four frames, each of which was

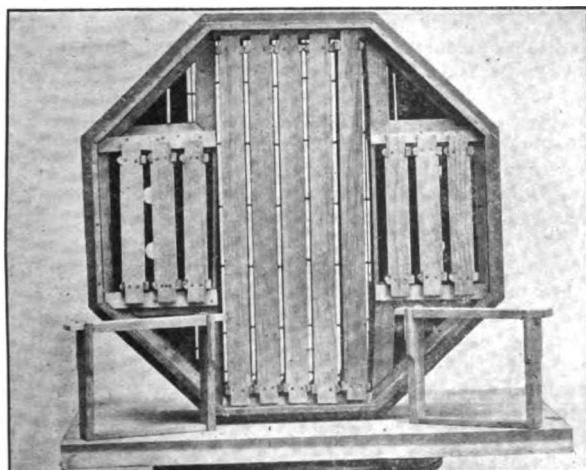
about half brood. I immediately added the super, took out all the frames of honey, and placed empty frames in the brood-nest, thereby giving the queen an opportunity to lay, of which opportunity she immediately took advantage. The empty combs



The scheme of frames in the Hake octagon hive.

that were placed above, and part of the frames placed below, were immediately filled with honey, so again I found myself in need of empty combs. As these I did not have, and having an extractor, I proceeded to place empty frames in the brood-nest, one at a time, waiting until each frame had been filled with comb before giving another one. Following this procedure, in three weeks' time my colony, in place of four frames of brood, had seven — something that would have been impossible had the brood-nest been left in the condition in which I found it on March 1. Two of these combs of new brood were new comb built in the empty frames.

The clogging of the brood-nest with honey is something which very seldom occurs in the spring in the central States; but it does occur later in the season, especially with colonies



Inside of the super.

that have cast a swarm. This applies with double force to those colonies that are allowed to cast an after-swarm. Perhaps here I can best illustrate my point by telling some actual occurrences. The first was in an out-apriary in one of the central States. The apiary had an attack of the swarming fever, with the result that every strong colony had cast at least one swarm. Along the latter end of July I went over the brood-nests of some 40 colonies that had swarmed. From those 40 brood-nests, if I remember correctly, I removed 30 gallons of honey. This was the salvation of those colonies. Had the brood-nests been left in the condition in which I found them, the queens would never have been able to build up the colonies in shape to go into winter quarters properly. It is just as essential to proper wintering that there be plenty of young bees as that there be plenty of stores. Another instance occurred in one of the Rocky Mountain States. There a yard which contained some 40 colonies, spring count, was run only for increase, the idea being only to make as many colonies as possible. This yard was extracted twice during the summer, the extracting being done out of doors. The two extractings totaled 150 gallons. This, of course, was not all taken immediately from the brood-nests, for the reason that, as there was a sufficiency of empty combs, whenever a frame became filled with honey it was removed and placed in a super and an empty frame placed down in the brood-nest. Here honey was only incidental. The idea never was to produce honey, only increase; but in spite of that fact the bees stored 150 gallons of surplus. In connection with this there is another thing that it oftentimes pays to practice in a small way, which, while it is known to most of the old-timers, may be new to some of the younger generation. That is, to take the frame of honey and uncaps it, or at least mash the cappings with the hive-tool, and place this uncapped frame in the center of the brood-nest, with the result that the bees will, under the right conditions, take a good proportion of this uncapped honey and store it above, and then utilize the comb for brood.

Another matter that goes with extracting brood-nests is that of spreading brood. Whenever conditions are such that the bees store the honey in the brood-nest, when the apiarist desires brood the spreading of brood should be practiced. In spreading brood, the great danger is in spreading it too much. A colony of bees is something like a sitting hen, as each can cover only a certain amount of brood, and with either it is very easy to give them too much to cover.

In spreading brood there is one hard-and-fast rule—that is, never separate one frame of brood off by itself. Always work them in pairs. For example, if there are but four frames of brood in a brood-nest, separate them in pairs, and place the empty comb between the pairs. If there are six frames and plenty of bees, the six can be separated into three pairs, and two empty combs be placed between them. This matter of extracting the brood-nest and spreading brood is a matter which beekeepers in each locality will have to work out for themselves. There is no hard-and-fast rule that will apply everywhere. It is necessary to understand thoroughly the season as well as the bees, and to consider what the future contains, and then act accordingly.

San Diego, Cal.

[If a comb-honey producer does not have a surplus of empty combs that he can draw on when the queen becomes honey-bound, he surely ought to have an extractor; and there are some seasons that are too poor to produce comb honey. The same may be said of some colonies in good seasons. A comparatively light colony will produce considerable extracted honey when it cannot be made to produce comb. In the same way a good colony in a poor season will produce some extracted but no comb. A comb-honey producer, however, does not need a large four, six, or eight frame extractor. A small two-frame machine will supply his needs.

In the matter of spreading brood, there is a good deal of science to it. An experienced man can very often build up his colonies just as our correspondent points out, and thus be better able to catch a flow of honey later on. Many and many a beginner, and some expert beekeepers who are short of help will allow their queens to become "honey-bound" at just that season of the year when they can ill afford it. An early fruit-bloom in some localities will sometimes absolutely shut out a queen. If three-fourths of the egg-laying room is occupied with honey there will be little likelihood that there will be a sufficient force of bees to gather a clover crop later on.

The "Outlaw," so called, is an old correspondent who has written for GLEANINGS for years, and from different parts of the country. While he is now a practicing attorney we are glad to note he has not lost his interest in bees. The very qualities that made him a student of law will also make him a better beekeeper. His article above may, therefore, be read with unusual care because it relates to some very important considerations for this time of the year.—Ed.]

Heads of Grain from Different Fields

Painting Entrances with Creaso Dip to Stop Robbing

About two years ago I was called by Mr. R. C. King, of Wharton, Texas, to see what was the matter with his bees, for they were dying by the thousands. We opened only two or three hives, when it was plain that they were starving. Some colonies were so nearly gone that the bees had eaten all the unsealed brood. I told him what was the matter, and we got busy with sugar and water. It was about April 15 or 20, with warm days and cool nights. When the bees began on the feed they commenced to try to get into the hives we had opened. I asked Mr. K. if he had any carbolic acid. He said no, but that he had some stuff that smelled a good deal like it, so when he got it, it was creaso dip. We mixed it with water, about half and half, and rubbed it on the hive where the bees were trying to get in. They stopped just as if one had caught them and carried them off. In five minutes they were as quiet as could be.

This fall we had a very good honey-flow that came in October; and when we were taking it off the weather was cool and cloudy, and, of course, we had hardly started before the robbers wanted to help. I had a little bottle of creaso dip; and when I had finished taking the honey out and had put the top on the hive I put a little of the dip around the hive under the edge of the top, and worked right along with as good results as if it had been fine warm weather with a good honey-flow on.

With the smoke plan of introducing queens, and $\frac{1}{4}$ -inch blocks to prevent swarming, and creaso dip to stop robbing, what else do we need except a good honey-flow for ten months in the year to make a success of the bee business?

Lane City, Tex., Nov. 10.

W. H. MOSES

Swarming without Increase

Last season, in hiving swarms we did not wish increase, so we put them into a hive as usual. That same afternoon we removed the parent hive a few feet away, and put the swarm on the old stand. Next morning we took brood, bees, and all from the parent colony, and gave them to the swarm, watching the frames to see that we did not get the queen in; and then we shook the bees remaining in the hive on the ground in front of the new colony. We could not take the time to find the old queen in the swarm. This plan worked finely last season. Colonies so treated worked with more vim and energy, and made more honey, than other colonies, and we could not see that they started queen-cells any sooner than if not given brood and bees from the old colony. Since the old queen is left in the colony, what trouble, if any, shall we get into by keeping up this practice? We can not follow directions given in the A B C and X Y Z of Bee Culture, because we use the Langstroth improved Simplicity hive. On account of the rim we can not use one over the other.

We wish to use some shallow extracting-supers, keeping them on long enough to induce the bees to work above them, and put on section supers. Can we use them without queen-excluders?

Whiting, Kan., March 23. JOSIE GRAY

[There is an old saying that "nothing succeeds like success;" and if the method of swarm control which you are using works well with you, then, most undoubtedly, that is the method to use. However, it is not new, but has been tried out by many beekeepers, and abandoned because it too often fails to give the desired results. In many cases the bees, after having been hived back on the old combs, would swarm out the very next day, or would loaf until

another batch of queen-cells was well under way, and then swarm again. In beekeeping it often happens that a plan which will work well one season will be a failure the next, and we would advise you not to count too much on this method until you have tried it out at least another season. If you follow up this practice it would be well to see that your old queens are replaced with young ones at least every two or three years, or you will finally have a lot of weak colonies on your hands. This will be due, of course, to the natural failing of the old queens.

Your plan of using shallow extracting-supers to induce the bees to work above before putting on the section supers is a good one. However, unless you use a queen-excluder you run the risk of your queen laying eggs in them. In that case the brood can be used to strengthen weak colonies.—ED.]

Death of Aaron Snyder, a Noted Beekeeper of New York State

Mr. Aaron Snyder, of Kingston, died March 8, 1914, in his 71st year. He was born in Albany County, N. Y., in 1843, and was a beekeeper from the time he was 16 years old. In 1889 he moved to Kingston. Here he ran from four to five apiaries, one being at his home bee-farm just in the edge of the city, and the others within driving distance, from two to six miles away.

Mr. Snyder leaves a wife and four children, all of whom are married, and live close to the old home. They have helped him in his business to such an extent that he has his letter-heads, and all of his honey-labels headed with his own photo, followed with the words, "The Snyder Bee and Honey Co."

Mr. Snyder was a practical apiarist. He had an inventive mind and made many changes, and used many kinds of hives. He produced mostly comb honey until the last few years, when he produced extracted honey.

His choice of hive was a nine or ten frame, 18 inches long and 12 inches deep, with extracting supers half the depth of the hive, holding Hoffman frames. He believed in selling his own honey, and could not produce all of the honey that he could sell, as he kept agents on the road as salesmen. He bought honey by the barrel, in addition to what he produced himself to supply his customers. He put up his honey in one-pound bottles, and some in five-pound pails, being careful to use good honey.

His agents would take back any honey that candied, and exchange it for liquid honey. This candied honey was then heated in his shop, and new labels put on the packages for the market.

In politics Mr. Snyder was a Prohibitionist. He was a hearty good fellow to meet at his home or elsewhere. He will be missed at our bee conventions, and by all who knew him. He had a jovial way. When in good health he used to stretch himself up by my side, then give me a couple of slaps with his hand, and say, "We are about the same height, and weigh in the same notch (212 lbs.), twin brothers." I should like to say more about his kind and happy family, but space forbids.

A FRIEND

Increasing by the Nucleus Plan

After reading the editorial on page 83, Feb. 1, I thought I would give my experience in making increase without materially weakening the old colony.

In the spring of 1912 I had 60 colonies of bees, and I wanted to increase to 100; but I did not want to let them swarm, nor divide them, as I wanted to secure a large crop of honey. So I decided to increase by the nucleus plan. I set to work to rear my own queens, so I could give the nuclei laying queens as soon as I started them. I started almost all of

the nuclei on the first of July with one big frame of sealed brood or two small frames, with all adhering bees, and gave each one a laying queen and drawn comb. Nearly all of them built up to good strong colonies by August 10, about the time the fall honey-flow commences, and they gave me an average of 80 pounds each of surplus honey, besides their winter stores.

Brook Park, Minn., Feb. 9. HARRY BELL.

Increase the Consumption, Stimulate the Market, and Stiffen the Market of Honey

Are you reading the series of articles running in the *Saturday Evening Post*, by Forrest Crissey? They are a revelation to those who are not familiar with the "Association way" of doing things. He has made a thorough study of associations, and in these articles he compares the old, narrow, "cut-throat" ways with the association methods now successfully in use in many vocations. He tells us how competitors who a few years ago were fighting one another, each trying to build up his own business by tearing down that of the other fellow, stealing trade secrets, processes, customers, and even skilled workmen, are now sitting side by side at the association meetings, "swapping" information, improved methods, and co-operating in every way for the uplift of the vocation, using the energy formerly required in tearing each other down to boost the trade generally. In this way each is benefited financially, morally, and (I trust) spiritually by the association of effort.

Almost all vocations are now taking up publicity for their products in the association way. Some of them pay their professional "boosters" a princely salary. I can name half a hundred associations that are advertising their products, not as individuals, but for all as an association. These progressive associations are forging ahead, while the few that cling to the old traditions and stay in the narrow rut are not getting on.

When we compare the real food value of honey, and the prices we are getting for it, with some of the well-advertised products, we find that they are getting more money for less value, and selling more goods; and about in the ratio of the publicity given them, these other goods are in advance of our product.

We have only ourselves to blame for this condition. We have increased our production, depending on the good qualities of our product to sell itself. But business is not done that way now. It used to be; and when it was, honey was at the head of the list of all the good things. Nowadays we all eat just what shrewd publicity men can convince us is necessary, sometimes against our better judgment. At the same time we are offering a delicious, wholesome product with a high food value, admirably fitted to take the place of meat on the laborer's table, or to grace the most exclusive banquet as the most dainty of delicacies. In spite of its manifold virtues, we find thousands of tables where it does not appear at all, and I have known grown-up persons who never tasted it in their lives.

There is nothing surer than the fact that honey will respond to proper publicity and pushing. We have a case in point up around Chicago, where some enterprising young men are "boosting" extracted honey, and a medium amber at that, and they sell tons and tons of it at a good round price, and do it year in and year out. Honey advertising, local or general, will give results as very few other products can, as it has value, real value as a delicacy, and as a health and strength giving staple.

We are likely to have a bumper crop this year, as the conditions are favorable everywhere, and we have the remnants of the last year's crop to clean up. But with proper united effort we can handle this big crop and stiffen the prices also. We have

20,000 beekeepers brimful of enthusiasm, ready to attempt any thing that promises to advance the interest of the industry. We have manufacturers of supplies whose business would be doubled if we double the production. We have big-hearted editors of bee-papers who will help us every way they can; and all these, and the others who will be benefited by the uplift, must work, individually and as an association, to increase the consumption, stimulate the market, and stiffen the price of honey. Alone, each of us can do a little; but all together, like a well-drilled army, we can do wonders in this direction. Do you belong to the association? If you do, get busy and boost. If you do not belong, get busy and join so you can help boost. If you have only 200 lbs. of honey for the market it is a good investment, and the association wants you.

GEO. W. WILLIAMS,
Secretary National Beekeepers' Assn.
Redkey, Ind.

How to Prepare a Car of Bees for Shipment

I am going to ship a car of bees to my place in a few days; and as I have never done any of this work I don't know much about it. They will be shipped only about 150 miles. You people have had considerable experience, and any thing you suggest will be gratefully received. I shall have to change roads on the way. How can I get the car transferred most quickly?

St. Joseph, Mo., April 7. J. F. ARCHDEKIN.

[In shipping a car of bees from one point to another, especially where they have to be transferred, it is very important that arrangements be made well in advance before the car is started. To that end ask your agent to have the matter looked up so the transfer can be made promptly at the transfer point.

The hives should be very securely braced in the car to prevent any jarring or shaking one way or the other. The hives should be loaded so that the frames will be parallel with the rails. If you have as many as two or three hundred colonies it will be necessary to make a very strong and rigid framework to hold the hives in tiers one above the other. The frames should be fastened if not of the self-spacing type, and during hot weather there should be a wire screen at the top and bottom of the hives. In addition it is important to have water along so that the bees can be sprayed if they get too warm or get to roaring too much in the hives. Of course, it is important to have a man go with them, and he must be prepared to stay up with them almost night and day until arrival at destination.

It is desirable to get the car as far forward in the train as possible to avoid the smoke from the locomotive; and, besides, at that point there is a little less jerk when the train is started and stopped.

We cannot emphasize too strongly the importance of having very strong framework, for the concussion of the train is something terrific at times, and it will knock down almost any ordinary light framework unless the whole thing is made rigid and strong.—ED.]

Combs Melting Down

As a bee country this upper Sacramento Valley is nothing to brag of. During a long warm or hot season the heat is sometimes excessive. The past summer combs and foundation melted to a considerable extent, and shade and ventilation did not prevent it. With hives ventilated both below and above, and top and sides shaded, I had much less from melting combs. The strong colonies suffered less than the weaker ones. A neighbor beekeeper had his comb honey melted in the upper story of his house, which was well ventilated. The air seemed to be actually hotter outside the hives than in them.

Orland, Cal., Jan. 25. P. P. MARTIN.

A. I. Root

OUR HOMES

Editor

At the same time came the disciples unto Jesus, saying, Who is the greatest in the kingdom of heaven?

And Jesus called a little child unto him, and set him in the midst of them,

And said, Verily I say unto you, Except ye be converted, and become as little children, ye shall not enter into the kingdom of heaven.—MATT. 18:1, 2, 3.

Just recently, in the city of Cleveland a new society has been started, called, if I am correct, the "Safety First Society." It came into existence because of the increasing number of children maimed or killed by electric cars, automobiles, motor trucks, etc. Its object is to educate the children, parents, teachers, and everybody else, for that matter, how best to avoid the deplorable and preventable catastrophes chronicled in every daily paper. Proper teachers are to warn the children in regard to playing with matches, drinking or eating stuff out of bottles, running before automobiles or street cars, etc. Children and others are also taught what to do when their clothing is on fire; remedies for poisons, danger of going in swimming when very warm; reviving a drowned person, etc. I think these matters are to be not only brought up in our schools, but "taught up" as well. God speed the undertaking, and may it speedily bear good fruit.

The whole matter was brought to my mind by an incident of less than a week ago.

We had just been having a heavy rain, and the ground was just in trim for setting out plants. By mere accident, as it seemed, I went down to the lower part of our garden (where it adjoins the "swimming-hole" in the canal), and commenced transplanting cassava "rooted cuttings." Looking over the wire fence I noticed two boys, perhaps a dozen years old, preparing to go in bathing. As I overheard their frolic as they chattered and splashed in the water I got to thinking what a fine thing it was in many ways to have a safe place where children could be happy in the water. After a little time I heard sounds that did not seem exactly like "play." I found one boy standing on my side in the water, and the other on the far side, apparently diving again and again. While I was wondering that a boy of his age could remain so long under water, it suddenly occurred to me he was exhausted, and I yelled to the one near me:

"The boy is drowning! don't you see?"

"Yes, I know he is."

"Well, hustle over there *quick* and pull him out!"

He only shook his head and didn't move.

"Hurry up, or he may never come up again. You *must* not lose a minute!"

Although his comrade and playmate was fast losing strength, and not a dozen feet from shore, and in comparatively shallow water, I *could not* get him to budge an inch. A responsibility rested on my shoulders I scarcely ever felt before. While I meditated climbing the high barbed-wire fence and plunging into the chilly water, old as I am, I caught sight of Wesley at work a few rods away. I yelled, "*Come quick!* boy drowning!" After some delay in getting Wesley over the fence he plunged into the water, I all the time hurrying him up. I did not know it then, but Wesley *cannot* swim. After he had waded until the water was up to his chin, and the boy still beyond his reach, he hesitated. Let me say here that never before have I known Wesley to hesitate an instant when I told him what to do. The boy lay on the bottom, and had ceased to move, and I was in mental agony for fear he would get down into the deep water. I said, "Wesley, you *must* push on and get the boy before it is too late," and then, oh how I *did* pray that the next step might find higher footing, and the prayer was answered. Wesley dragged the apparently lifeless body to shore, and after I had directed him to put his head down hill so the water could run out of his lungs I alarmed the neighbors, then I rushed back and called to Wesley:

"Any sign of life?"

I thought of the prophet Elisha and Gehazi, and then called back, as I was off quite a distance.

"Now put his head up hill, and roll and rub him!"

Then I got to a telephone and called a town doctor, and also got Dr. Morgan (one of our family of beekeepers), who is old like myself, and many years out of practice. I prayed again as I ran back; and when in sight, as I heard the welcome news, "Boy is all right," I changed my "prayers to praises."

Wesley says there was no sign of life until the boy coughed and sneezed, and expelled great quantities of water from his mouth. When I talked about getting him home, he laughed and said, "Ho! I am all right," and the two started off as merry as if nothing had happened; and although he promised me to tell his father all about it I am really afraid that, child fashion, he will forget to say anything about it. The doctor felt his pulse, and said he guessed his narrow escape had done him no harm.

Just a few days ago a beautiful bright little girl was shot and killed by her brother, in our neighboring city of Akron. Her father, as former sheriff of this county, had a revolver; but as he always removed the shells when putting it away it was a mystery for some time as to how it could have been loaded. Finally it was discovered that a young brother found where the shells were

kept, and put one in the revolver as he had seen his father do. Shall we all not be more careful of these murderous firearms? If they *must* be handled, shall we not avoid letting the children get even a *sight* of them? Year in and year out, our papers are telling the old, old story, "Didn't know it was loaded."

TEMPERANCE

"GOD'S KINGDOM COMING."

We clip the following from the Cleveland *Plain Dealer* for April 6:

DANIELS PUTS END TO LIQUOR IN NAVY; ORDER CONSTITUTES NOTABLE VICTORY FOR PROHIBITION FORCES; GOES IN EFFECT JULY 1; EDICT WILL PREVENT USE OF INTOXICANTS ON ALL SHIPS AND LAND STATIONS.

Secretary Daniels to-night made public an order which not only will abolish the traditional "wine mess" of officers, but will bar all alcoholic liquors from every ship and shore station.

This order, one of the most notable victories ever won by prohibition forces, was issued on recommendation of Surgeon General Braisted. It reads:

"The use or introduction for drinking purposes of alcoholic liquors on board any naval vessel, or within any navy yard or station, is strictly prohibited, and commanding officers will be held directly responsible for the enforcement of this order."

In a statement issued to-night Secretary Daniels said:

"I am in hearty agreement with the views expressed by the surgeon general in his paper accompanying the recommendation. There should not be on shipboard, with reference to intoxicants, one rule for officers and another and a different rule for the enlisted personnel. The saddest hour in my official life is when an officer or enlisted man must be punished for intoxication.

"During the past week it has been my painful duty to approve a court-martial for dismissal from the service of an officer for intoxication. He told me that he had never tasted intoxicating drink until he did so in the wine mess on his cruises. Others, who have been disciplined for drinking to excess, have made similar statements to me.

"Officers are now commissioned at the early age of 22 years. Has the government a right to permit this temptation which too often destroys the highest usefulness of young officers? I think not. If there is one profession more than any other that calls for a clear head and a steady hand it is the naval profession. Experience has shown the wisdom of having no intoxicants on our ships for the young men who enlist."

Some time ago I read the Chicago *Record-Herald* with much interest; but its liquor advertisements were so offensive I protested. As it seemed to do no good I dropped it. See the following from the *American Issue*:

RECORD-HERALD CUTS OUT LIQUOR ADVERTISEMENTS.

The Chicago *Record-Herald*, one of the great daily newspapers of the United States, in its edition of last Sunday, gave notice that it has decided to eliminate liquor advertising from its columns. It will fulfill its existing contracts to print this class of ad-

vertising, and having done that it will accept no more. In a statement of its position the *Record-Herald* says:

"The *Record-Herald* goes into many thousand homes. In virtually all of these homes there is an abiding sense of the need of protection against the use of the liquor traffic, especially for the young. In constantly increasing degree there is abstention from the use of liquor for the sake of the young. There is the haunting fear, that from the first indulgence the young and unformed character may unconsciously drift into an uncontrolled and destructive habit of excess. Liquor advertising does not discriminate between use and abuse. It commands without reserve what the best social sense of the day more and more disapproves as dangerous."

This places one more of the great newspapers of the country in the rapidly filling column of those who refuse to be longer known as barkers for saloons for the sake of the dollar.

VOTING WET, LICENSING SALOONS, ETC.

The following was sent us by Dr. A. F. Bonney, Buck Grove, Ia., and it seems to me it sums it up pretty fairly.

I am the mightiest king that ever lived. Other monarchs have yielded to me as a child to its sire. I have in every land laughed at their gods, from Osiris to Jehovah.

With my breath have I wiped whole nations from the face of the earth.

For me men discard honor, and women virtue. I destroy ambition, shame priests, debauch nuns, ruin statesmen, and—still they love me.

I fill the insane-asylums and the prisons. I house my subjects in hovels and feed them on husks. Still they love me.

Fathers give me their sons, mothers their daughters, maidens their lovers, and—beg me to stay.

With one touch have I ruined great industries.

Judges yield to my power, and advocates forget under my spell to plead.

I burnt Rome. With one touch have I sunk navies and destroyed great armies.

I never sleep.

I turn gold into dross, health into misery, beauty into caricature, and pride to shame. Yet the more I hurt the more I am sought.

I by turns raise a man to highest heaven and sink him to deepest hell.

I am Satan's right-hand man. I do his work freely, cheerfully, and without pay; yet the father of lies is ashamed of me.

My name is Rum. Have you ever heard of me?

Just now I am a little pressed, and I ask that you sign my next petition of consent, for only I can turn men to brutes and women to worse, and have them still seek me, and continue to until I am driven out. Help me. Give me your son, your daughter, your lover. Give me your honor, wealth, and life. Just now I need the help of honest men.

MAY 1, 1914

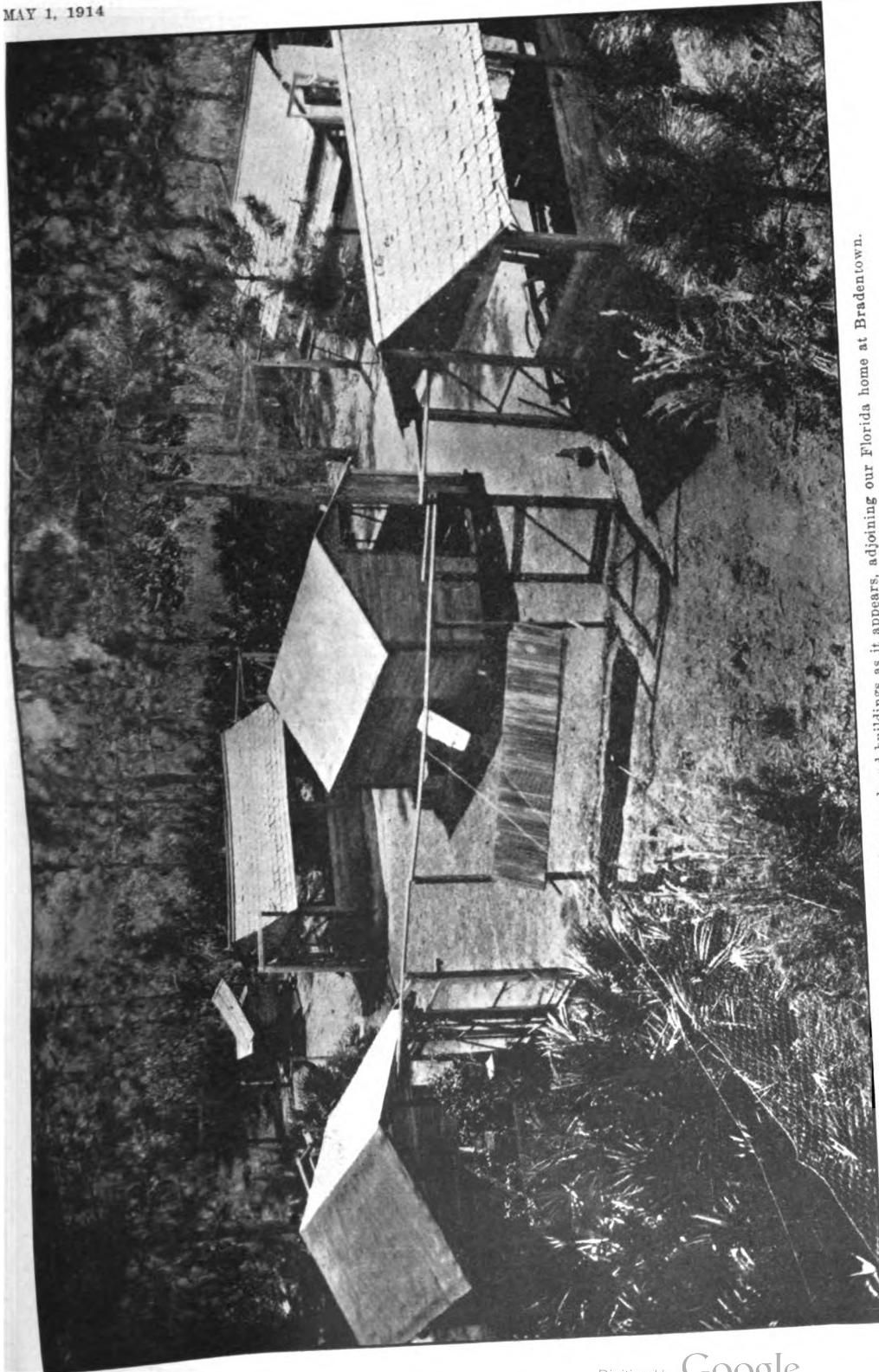


FIG. 1.—Our "convent" poultry yard and buildings as it appears, adjoining our Florida home at Bradenton.

POULTRY DEPARTMENT

THE CONVERGENT POULTRY-YARDS UP TO DATE; SEE CUT ON PREVIOUS PAGE.

In GLEANINGS for July 1, 1912, I gave you some diagrams, etc., of the above poultry-yards. These pictures were at the time largely theory. I now take much pleasure in giving a real picture of the place where I spend many happy hours. Ernest secured the excellent view of it all by mounting a long ladder (with his kodak) leaned up against one of the pines, such as you get a glimpse of in the picture. Suppose I go

"waterfall") I supposed that they found plenty of shells on its pebbly bottom. However, as we are now getting from 12 to 15 duck eggs every day I concluded to give them all the shells they wanted. The ducks have a yard where they stay nights, at the upper left-hand corner. There is a very small structure where they can get out of the hard rain in their yard; and the lane where they get down to the canal is just beyond this small covered shanty. If I don't get around promptly to open this gate at 8:30 A.M. there is a chorus of 18 voices in protest.

On the north, south, east, and west of this granary, and at equal distances from it, are four similar buildings. Each one is divided in the middle with a wire partition, thus making eight separate houses, and each of the eight has a separate yard, the division fences running out like the spokes of a wheel. These fences go out off in the woods as far

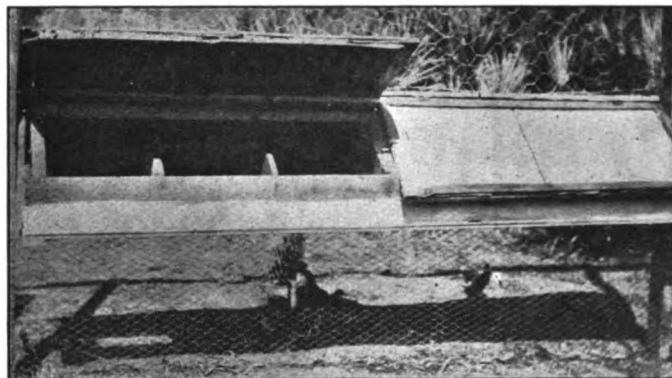


FIG. 2.—A view of the other side of the nest-boxes shown in Fig. 1.

over it with you all, something as I take visitors through it and "explain things," as I do more or less almost every day.

The central building is the granary where all the feed is stored, and where we have a bone-mill for grinding bones and scraps of meat from the butcher's, about twice a week. On the north of this building you will notice two boxes, one containing ground oyster-shells and the other mica crystal grit. The whole crowd of about 100, big and little, visit these boxes almost constantly; and just a few days ago, when the gate was left open, I noticed the Indian Runner ducks (18 in all) greedily gobbling up the crushed shells. As they run in the canal every day (see picture of

as the chickens care to travel. You can see one fence in the foreground. It is looped up to a stout wire. When this fence reaches the "inner court," as we call it, you see a group of eight covered nest-boxes. As I am an old man, it is something of a task for me



FIG. 3.—The wire netting basket used when I feed the flock lettuce, mustard, cabbage, beet-tops, etc.



The W. I. Red hen that had 20 eggs and hatched 19 chicks. I tried to call them up with a head of lettuce, but they were rather shy of the kodak, and skulked off among the palmettos.

to stoop over in gathering the eggs daily. and so I have the nests at a convenient height. The roof on the opposite side is hinged (see picture No. 2), and when thrown up and back I can get the eggs, handle sitting hens, etc., quite easily. The bottoms of the nests are inch netting, so all the fine stuff rattles through. I think this plan favors keeping out vermin. At intervals fresh dry grass is supplied. Each one of the eight apartments contains a galvanized tub fastened on top of a post about 18 inches high, and these tubs always contain wheat and corn. Even the small chicks soon learn to fly up into these tubs; but a Florida rat, never. Where each *diagonal* yard strikes the inner court, there is a pan of water; and this water is always clean and fresh, for the windmill keeps water dropping into the pan day and night. One of these pans is just visible nearly under the nest boxes, each pan supplying two yards, as you will notice.

I will explain right here that the original idea was to have all gates closed, and no fowls allowed in the inner court. Well, this is all right on the start; but I soon learned each flock will stick to its own house and yard pretty well after it has been kept shut up for a few days. It saves lots

of work to leave the gates all open except the ones that confine them safe from intruders in the night time. It is my pleasant task to shut all the doors as soon as all are on the roost at night, and to open again as soon as it is light enough for them to want to go out in the morning.

I have told you elsewhere how we now care for the droppings; and it is a pleasant task to sweep out the inner court with a broom so it looks neat and tidy when visitors come around. I confess, however, when we have such abundant and frequent hard rains as we have had this winter, it sometimes is a little "sloppy" until the water soaks into the sandy soil, and to further this, Wesley and I have just been putting in tiles beside the surface drain around each building. A hundred fowls give about a dozen to each of the eight apartments, and if there are many more than this on one roost, there is more "nagging" by some of the older and more important "biddies." Each hen with her brood of chicks has a house and yard to herself, and I tell you this is a great convenience. I like to give the youngsters bread and milk; but when you do this you don't want any "grown-ups nosing around."

Oats are buried in the soft mellow soil

(with a cultivator) in every yard, about twice a week; and although the ducks don't scratch, they are as fond of digging out the soaked oats as are the chickens. When the young roosters get big enough to annoy the pullets they, too, need a yard all by themselves. In order to get a vacant yard, we often double up temporarily; and as each house and yard is a duplicate of the others, the moved fowls always know where to get food, drink, etc. Much has been said about dispensing with males; but a good rooster will keep his flock together, and will take them away off down by the canal and into new forage where they may get a large part of their food better than a flock of hens.

In cut No. 3 they were a little backward about crowding up around the "greens," because Ernest was a stranger. One hen, however, it seems, was immodest enough to hop into the basket and give us all a "backward" view in another sense of the word. Notice the different colors that crop out by my cross of Buttercups and Leghorns. Just

now (March 10) we are getting from 35 to 40 eggs a day from 50 layers, and two days we had 44 eggs. At 30 cts. a dozen this, with the ducks, pays very well. A visitor remarked a few days ago, "Why, Mr. Root, with your fine outfit it almost looks as if you had nothing to do but "gather the eggs;" but I tell you such a ranch needs pretty close watching several times a day to do its best. Sitting hens should be spotted and taken away just as soon as a symptom is visible; and quite often *something* goes wrong that needs righting at once.

CASSAVA FOR CHICKENS, ETC.

Mr. A. I. Root:—Cuttings are about four inches long, cut ready to plant; are planted about 4 x 4 feet; or 4 x 5 on good well-drained land will make from ten to twenty pounds of roots per hill; does well on the high sand hills. It makes good feed for cows and pigs, horses and chickens, also for table use, grated and made up like sweet-potato pudding. Four pounds is equal to one pound of corn as feed. It will stand shipping by freight. I have grown it in this section for the past 25 years.

Loughman, Fla., Mar. 14.

R. ADDISON.

HIGH-PRESSURE GARDENING

THE TWO DASHEEN TUBERS SENT OUR SUBSCRIBERS, ETC.

Since my brief notice that the tubers were ready to mail I have addressed more packages than I have for years past; but the kind words that came in almost every letter or on every postal card made the task a very happy one. I presume they are mostly planted by this time, either indoors or out; and you may be glad of some suggestions as they begin to show their snow-white shoots and unfold their pretty green leaves. Old decomposed stable manure will likely be the best "feed" for their tiny rootlets; then give them water as fast as they seem to need it. As they need much sun and heat give them a place sheltered from the cold winds. Although they are a sort of water-plant there must be good drainage. If they can get their white roots down into damp loose soil, that will suit them. Years ago I had a good deal to say about "Father Cole's" "New Agriculture." The plan was to gather and bury the rocks and cobble stones on the farm, in a pit. On top of the rocks was brush, old straw, and coarse stable manure, and then the soil. The roots of the growing crops would go down into the water between the stones and trash, and be immune to drouth. We have been clearing our wild land by burying weeds and

bushes in the same way, and this suits the dasheen to a dot. Ours are at present making a most astonishing growth.

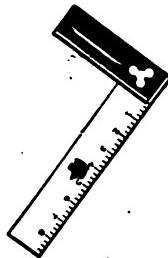
Now here comes in another most wonderful thing about this plant. After it has grown a foot high or more you will notice tiny suckers shooting out around the parent stem. This is the way in which it multiplies. So far as I know it never blossoms or bears seed. Well, these suckers, if left, will each make a tuber springing out from the central parent tuber, or "corm;" but if you want rapid increase take them off at any stage of growth, and plant them out. Our finest bed was made by taking up our old plants and separating them until each made a dozen or more, and not one of the lot even wilted a leaf. Some of our oldest "clumps" will now give us 20 or 30 good plants for a new plantation. Of course, this latter is possible only where the plant can grow every day in the year, because we have no frost. Let me repeat: Every bit of the plant is always edible every day in the year—the tuber under ground, the leaf-stalk, both under and above ground, and the green leaves on top of the stalk. It is not *only* edible, but delicious and nourishing food. Huber and his wife are here with us in our southern home, and they too seem never to tire of what we call "dasheen asparagus" and dasheen "spinach."



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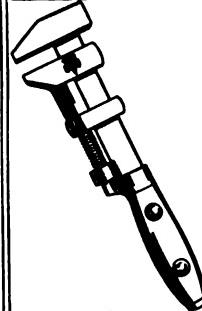
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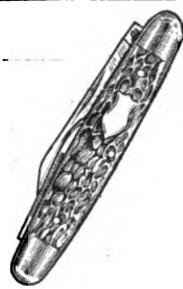
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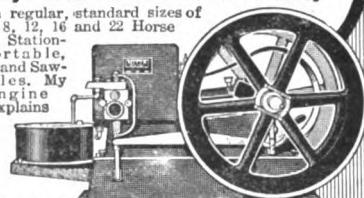
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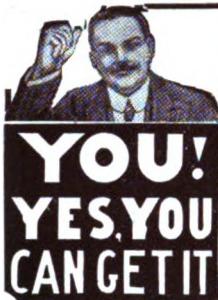
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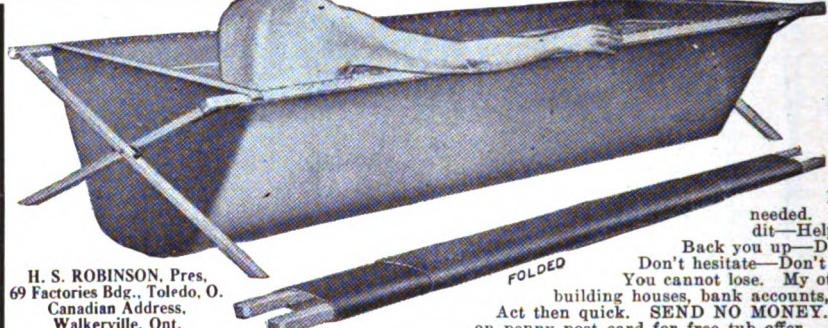
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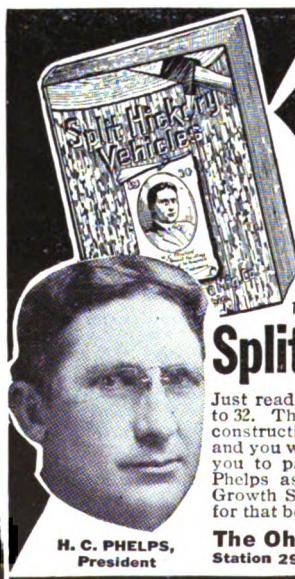
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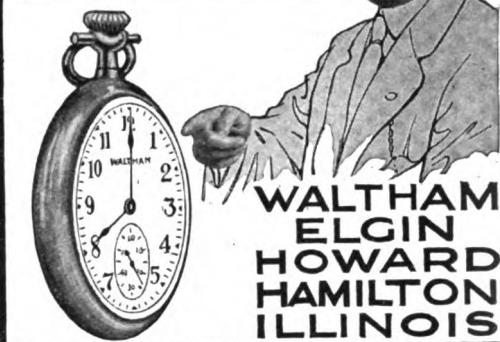
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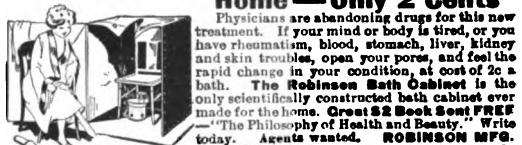
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Untested..	\$1.00	\$5.00	10.00	\$.90	\$4.50	9.00	70.00	\$.70	\$4.00	\$7.75	65.00
Tested....	1.25	6.00	12.00	1.00	5.00	10.00		1.00	5.00	10.00	

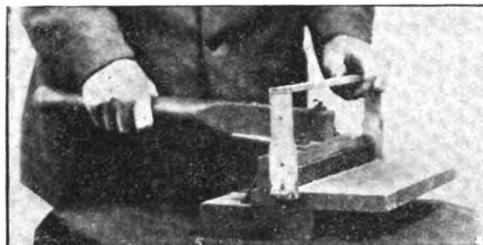
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My three-banded Italians captured first prize again at Dallas State Fair and the Cotton Palace Fair at Waco. This speaks for itself. None better.

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QUEENS	May 1st to June 1st			June 1st to July 1st			July 1st to Nov. 1st		
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Untested	\$ 1.25	\$ 6.50	\$11.50	\$ 1.00	\$ 5.00	\$ 9.00	\$.75	\$ 4.00	\$ 7.50
Select Untested	1.50	7.50	15.50	1.25	6.50	12.00	1.00	5.00	9.00
Tested	2.00	10.50	18.50	1.75	9.00	17.00	1.50	8.00	15.00
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Breeders, \$5.00 to \$10.00.

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Quirin's Improved Superior Italian Bees and Queens. . . They are Northern Bred and are Hardy. . . Over 20 Years a Breeder.

	Before July 1st		After July 1st			
	1	6	12	1	6	12
Select untested . . .	1.00	5.00	9.00	.75	4.00	7.00
Tested	1.50	8.00	15.00	1.00	5.00	9.00
Select tested	2.00	10.00	18.00	1.60	8.00	15.00
2-comb nuclei	2.50	14.00	26.00	2.25	12.00	22.00
3-comb nuclei	3.50	20.00	35.00	3.25	18.00	31.00
8-frame colony	6.00	30.00		5.00	25.00	
10-frame colony	7.50	38.00		6.50	32.00	
1-1/2 lb. pkg. bees . . .	1.50	7.00		1.00	5.00	
1-lb. pkg. bees	2.00	10.00		1.50	8.00	

BREEDERS—the cream selected from our entire stock of outyards; nothing better. These breeders \$5.00 each.

Can furnish bees on Danzenbaker and L. or Hoffman frames. Do not write for lower prices even if you want 1000 queens or 100 colonies. Price is already low, considering the quality of our stock and prompt service.

Above price on bees by pound, nuclei, and colonies, does not include queen. You are to select such queen as you wish with the bees, and add the price.

No bees by pound sent out till first of June. Also nuclei and colonies, if wanted before June 1st, add 25 per cent to price in table.

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Bred from selected mothers, and mated to isolated drones of a different strain. My aim is quality and not quantity. So if you want any of these choice purely mated three-banded Italian queens order now or you may not get them as I am going to rear only a limited number. No disease, and your money back if not satisfied. The A. I. Root Co. use my queens, which is proof of their quality.

No need to write for lower prices.

Reference, The American Exchange Bank of this city.

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Twenty-six years of careful breeding places Laws' queens above the usual standard.

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Bred for Persistent Profitable Production of Honey. Prolific, hardy, gentle. The bee for pleasure or profit. One customer says, "Your queen soon had her ten frames running over with bees that are hustlers." Cells built in strong two-story colonies, and mated by best-known methods. No disease. Satisfaction guaranteed. Orders filled promptly. Ready May 20. Untested, \$1.00 each; six for \$6.50; dozen, \$10.00. Select tested, \$2.00 each.

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Classified Advertisements

Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the Classified Columns or we will not be responsible for errors.

HONEY AND WAX FOR SALE

FOR SALE.—Finest quality buckwheat honey in cans and kegs. Clover honey all sold.

C. J. BALDRIDGE, Kendalia, N. Y.

FOR SALE.—No. 1 white comb, \$8.00 per case; fancy, \$8.25; 24 Danz. sections to case, six cases to carrier.

WILEY A. LATSHAW, Carlisle, Ind.

HONEY AND WAX WANTED

WANTED.—Comb, extracted honey, and beeswax. R. A. BURNETT & Co., 173 So. Water St., Chicago.

WANTED.—Comb honey and beeswax. State what you have and price. J. E. HARRIS, Morristown, Tenn.

WANTED.—Honey, extracted and comb. Will buy or handle on commission. Beeswax—will pay highest price. HILDEBRAND & SEIDLKEN, New York, N. Y.

WANTED.—Best grade white-clover and buckwheat extracted honey in cans or small barrels; the square five-gallon can, two cans to the case, preferred. Send sample, and quote best cash price delivered f. o. b. Medina, also f. o. b. Chicago, Ill. Can use quite a large quantity of both grades.

THE A. I. ROOT CO., Medina, Ohio.

FOR SALE

FOR SALE.—A full line of Root's goods at Root's prices. A. L. HEALY, Mayaguez, Porto Rico.

FOR SALE.—Full line of Root's goods at factory prices. E. M. DUNKEL, Osceola Mills, Pa.

FOR SALE.—Better hives for less money. Beekeepers' supplies and standard-bred Italian bees. Write for catalog. A. E. BURDICK, Sunnyside, Wash.

FOR SALE.—Root's goods at factory prices. Fresh stock and prompt, accurate service. Let's get acquainted. L. W. OROVATT, box 184, Savannah, Ga.

FOR SALE.—Empty second-hand cans, two cans to the case; good as new; 25 cts. per case. C. H. W. WEBER & Co., Cincinnati, Ohio.

Beekeepers, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap. WHITE MFG. CO., Greenville, Texas.

We are among the largest growers of alsike clover in this country, and offer good clean seed. Bushel, \$11.00; half bushel, \$5.75; peck, \$3.00. C. J. BALDRIDGE, Homestead Farm, Kendalia, N. Y.

The A. I. Root Co.'s Canadian House, Dadant foundation, bees, queens, honey, wax, poultry supplies, seeds. Write for a catalog. THE CHAS. E. HOPFEE CO., 185 Wright Ave., Toronto, Ontario.

FOR SALE.—Smokers and feeders slightly damaged by flood, at one-half catalog price. Bargains. Mention what you want and enclose remittance. We reserve right to substitute.

E. W. PHIRCE, Zanesville, Ohio.

FOR SALE.—22 1 1/2-story second-hand Danz. hives, brood-frames, and section-holders, practically good as new; \$1.50 each, 1/2 of list price; 5 one-story, \$1.00. Bees were transferred; combs and frames boiled to melt wax. No disease.

A. MOTTAZ, Utica, Ill.

"Root" bee supplies, "American" honey-cans, and "Weed Process" foundation exchanged for beeswax and honey. Cash prices on request.

SUPERIOR HONEY CO., Ogden, Utah.
(Branch at Idaho Falls, Idaho.)

WANTS AND EXCHANGES

WANTED.—Old diseased combs in future. Must be cheap. F. W. MORGAN, DeLand, Ill.

WANTED.—Bees in lots of 25 to 800 colonies, preferably within 250 miles of Detroit, Mich.

A. W. SMITH, Birmingham, Mich.

WANTED.—To sell untested queens from my superior clover-strain Italians in quantities.

I. F. MILLER, Brookville, Pa.

WANTED.—To exchange a 5 x 7 Pony Premo No. 6 camera, almost new, for bees.

S. G. STUART, box 59, Sugar Grove, Pa.

Will any subscriber who has a copy of GLEANINGS IN BEE CULTURE for February 1, 1914, which is in good condition, and which he is willing to spare, notify THE A. I. ROOT CO., Medina, Ohio?

WANTED.—Best offer on thirty 12-section safety cases of No. 1 to fancy clover-heartsease honey placed in our hands for disposal. Color light as average clover. E. W. PHIRCE, Zanesville, Ohio.

WANTED.—To furnish every beekeeper within 500 miles of Boise, Idaho, with the best and cheapest bee supplies on the market, *quality considered*. Send me your order or a list of your requirements for 1914. Our catalog and price list will be mailed to you free. Order early and get the discounts.

C. E. SHRIVER, Boise, Idaho.

REAL ESTATE

Do you wish to buy rich, level, unimproved, heavy wild-grass land, close to town of two railroads, and only 200 miles from Chicago? Address owner for particulars. Price \$60 per acre. Box 42, Colo. la. 7752

Virginia orchards pay handsome profits. Good fruit lands in the famous apple belt \$15 an acre up. Easy payments. Send names of two friends interested in Virginia and receive our beautiful magazine one year free. F. H. LABAUME, Agr'l Agt. Norfolk & Western Ry., Room 246, N. & W. Bldg., Roanoke, Va.

BEES AND QUEENS

Want to sell yard of bees, or get some one to run them. J. ALPAUGH, Ingerkip, Ontario, Canada.

Phelps' Golden Italian Queens will please you. C. W. PHELPS & SON, 3 Wilcox St., Binghamton, N. Y.

Pure Italian bees or their hybrids, in L. 10 frames, wired, full foundation, 1 or 100.

JOS. WALRATH, Antioch, Cal.

Golden Italian queens, good as any. Tested, \$1.00; select tested, \$1.25; untested, 70 cts.; dozen, \$8.00. D. T. GASTRE, Rt. 2, Randleman, N. C.

Connecticut queens, 3-banded Italians only; large and vigorous; ready May 15. Price list.

W. K. ROCKWELL, Bloomfield, Ct.

Fine Italian queens. See my large ad. in this issue.

J. F. ABCHDEKIN, Rt. 7, St. Joseph, Mo.

Golden yellow Italian queens my specialty. Un-tested, \$1.00; tested, \$1.50. Ready April 1. Safe arrival guaranteed. E. A. SIMMONS, Greenville, Ala.

Choice young queens now ready, \$1; six for \$5.
GEORGE H. READ, DeLand, Fla.

Phelps' Golden Italian Bees are hustlers. C. W. PHELPS & SON, 3 Wilcox St., Binghamton, N. Y.

Leather-colored Italian queens June 15. Circular free. No foul brood. One, 85 cts.; 6, \$4.50; dozen, \$8.00. D. G. LITTLE, Hartley, Iowa.

Three-frame nucleus for sale with queen, \$2.50; 3 or more, \$2.25, on Langstroth frames; commence to ship about May 15. W. H. STANLEY, Dixon, Ill.

Three-band Italian queens. Tested, \$1.00; untested, 75 cts. Ready May 15. S. CLICK, Mt. Jackson, Va.

Golden Italian queens, \$1.25 each; six for \$6.00; untested; 10th to 15th April. J. B. CASE, Port Orange, Fla.

FOR SALE.—Eight good colonies of Italian bees in Danzenbaker hives at \$4.50 each. HARRY C. KLAFFENBACH, Muscatine, Iowa.

FOR SALE.—40 colonies Italian bees in ten-frame Langstroth hives, wired Hoffman frames. No disease. J. B. RATOLIFFE, Amboy, Minn.

FOR SALE.—50 to 75 colonies, strong in bees and honey, free from disease, in L. hives, at Oakfield, Wis. Address B. W. WELLS, Grand Rapids, Wis.

Queens by return mail, three-band untested Italians, good as can be produced. No disease; 75 cts. each. W. D. ACHORD, Fitzpatrick, Ala.

FOR SALE.—150 colonies tested Italian bees; honey-house, tent-house, and complete extracting equipment. H. E. DIKE, Calabasas, Cal.

California Golden three-banded queens equal the best. Drop us a line. Mated, 75 cts.; 12, \$8; 50, \$32; 100, \$60; tested, \$1.25 to \$2.50. W. A. BARSTOW & CO., San Jose, Cal.

FOR SALE.—Golden Italian queens that produce golden bees; for gentleness and honey-gathering they are equal to any. Every queen guaranteed. Price \$1.00; 6 for \$5.00 WM. S. BARNETT, Barnett's, Va.

FOR SALE.—Italian bees, 1 lb. with queen, \$2.25; 1 frame with queen, \$2.00. Queens, 75 cts. each. Safe delivery guaranteed; 30-page catalog with beginner's outfit for stamp. THE DREY TAYLOR CO., Newark, N. Y. (formerly Lyons).

FOR SALE.—75 colonies of bees in 10-frame L. hives. Wintered in good shape. Reason for selling—have not the time to care for them. Write for particulars. ALBERT L. MARTIN, Leoniardsburg, O.

QUEENS OF QUALITY.—Three-band, leather color, select untested, 75 cts. each; \$8.00 per dozen. Satisfaction guaranteed. Circular free. J. I. BANKS, Liberty, Tenn.

My queens are bred from imported mother. For gentleness and honey-gathering they are unexcelled. Untested, 1, 75 cts.; 6, \$4.25; 12, \$8.00. Safe arrival. Address W. J. FOREHAND, Ft. Deposit, Ala.

FOR SALE.—50 full colonies pure Italian bees in eight-frame dovetailed hives with Hoffman frames at \$6.00 each. All queens last-year Moore. Hives in good condition, painted. No disease. F. A. GRAY, Redwood Falls, Minn.

Queens and bees for sale.—See our large advertisement elsewhere in this journal, and read The A. I. Root Co. letter to us regarding our queens. Write at once for large bee and queen circular. THE PENN CO., Penn, Miss.

California Italian queens, three-banded and Goldens; also bees by the pound for June and later delivery. Booked full till June 1. Circular and price list free. Write J. E. WING, 155 Schiele Ave., San Jose, Cal.

Golden Italian queens that produce golden bees, the brightest kind, gentle, and as good honey-gatherers as can be found. Each, \$1.00; six, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.

J. B. BROCKWELL, Barnett's, Va.

Phelps' Golden Italian Queens combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; six, \$5.00; tested, \$2.00; breeders, \$5.00 and \$10.00. C. W. PHELPS & SON, 3 Wilcox St., Binghamton, N. Y.

Golden and three-band Italian and Carniolan queens ready to ship after April 1. Tested, \$1.00; 3 to 6, 95 cts. each; 6 to 12 or more, 90 cts. each. Untested, 75 cts. each; 3 to 6, 70 cts.; 6 or more, 65 cts. each. Bees, per lb., \$1.50; nuclei, per frame, \$1.50. C. B. BANKSTON, Buffalo, Leon Co., Texas.

Try Forehand's three-band Italian queens. They are raised from imported stock, unexcelled for honey and gentleness. One untested, 75 cts.; 6, \$4.25; 12, \$8.00. Send me your order; and if not satisfied I will return money. Safe arrival.

N. FOREHAND, Rt. 2, Brewton, Ala.

Dunn's Golden Italian queens, bred strictly for business, that produce a strong race of honey-gatherers. March 1 to Oct. 15: One, mated, 75 cts.; 6, \$4.25; 12, \$8.25; 50, \$32.50; 100, \$60.00. Tested, \$8.00; breeders, \$10.00. L. J. DUNN, Queen-breeder, Box 337G, Rt. 6, San Jose, Cal.

FOR SALE.—40 colonies bees in 8 and 10 frame hives; comb and extracted honey equipment; total equipment for about 100 colonies, 2-fr. Cowan extractor, queen-rearing outfit, Alexander feeders, and numerous other things, \$800. Address MARTIN S. BACKER, Fulton, Mo.

Golden and three-banded Italians, ready March 1. They have been bred for three points—prolificness, gentleness, and honey-gathering qualities. Select untested, each, 75 cts.; six, \$4.25; 12, \$8.25; 50, \$32.50; 100, \$60.00. Tested, \$1.50; select tested, \$2.00; three-banded breeders, \$4.00; golden breeders, \$5.00. GARDEN CITY APIARY CO., Rt. 3, Box 86, San Jose, Cal.

FOR SALE.—Swarms of young Italian bees in packages. Replace winter losses and strengthen weak colonies with healthy young bees; $\frac{1}{2}$ -lb. packages, 90 cts. each; 1-lb. packages, \$1.25 each; 2-lb. packages, \$2.45 each. Young untested Italian queens, the three-banded hustlers, 75 cts. each. We guarantee safe arrival. No disease. For large quantities write for wholesale prices.

BROWN & BURRY, Hayneville, Ala.

BEE AND QUEENS.—Queens bred from Doolittle's best stock, untested, 60 cts. each; \$6.50 per dozen; \$50 per 100. Same stock of year-old queens removed from our colonies to prevent swarming, 50 cts. each; \$5.40 per dozen; \$40 per 100. Delivery guaranteed. Nuclei, two-frame, \$1.50; three-frame, \$2.00. Add price of above queens wanted. We have a rare bargain of apiary of several hundred colonies of bees for sale on easy terms. Particulars on request. SPENCER APIARIES CO., Nordhoff, Cal.

Famous North Carolina bred Italian queens for sale.—(Red-clover three-bander); honey-gatherers, good as the best. Strictly reared from Geo. B. Howe's best breeders, mated with Root's, Moore's, Davis' select drones; bees that get the honey; free of disease. Untested, 1, 75 cts.; dozen, \$7.50. Select untested, 1, \$1.00; dozen, \$9.00. Tested, 1, \$1.25. Select tested, \$1.50. Extra select tested, \$2.00. Breeders, \$8.00 to \$5.00.

H. B. MURRAY, Liberty, N. C.

FOR SALE.—Early swarms at fall prices; $\frac{1}{2}$ lb. bees, \$1.00; 1 lb. bees, \$1.50. Add price of queen if wanted. Untested three-band Italian queen, 75 cts. each; tested Italian queens, \$1.25 each. These are bred from best honey-gathering strain. No disease. Safe arrival and satisfaction guaranteed. This is undoubtedly the best way for Northern honey-producers to increase and improve their stock. Delivery begins about April 5. Capacity, 40 swarms per day.

W. D. ACHORD, Fitzpatrick, Ala.

Three-banded Italian queens: Before July 1, untested, 1, \$1.00; 6, \$5.00; 12, \$9.00; select untested, \$1.25; 6, \$6.25; 12, \$11.00. After July 1, untested, 1, 75 cts.; 6, \$4.00; 12, \$7.00; select untested, 1, \$1.00; 6, \$5.00; 12, \$8.50. One-frame nucleus, 75 cts.; two-frame, \$1.50; three-frame, \$2.25. To each nucleus add price of queen. Our queens are reared in a locality where there has never been disease, and reared from strong vigorous colonies. The apiary is under most competent supervision. Safe arrival and satisfaction guaranteed.

HORNER QUEEN & BEE CO., Ltd., Youngsville, Pa.

Guaranteed purely mated 3-band Italian queens, J. E. Hand strain, bred for gentle, prolific, honey-gathering, wintering, and long life. State Inspector's certificate. Commence mailing young queens about May 15. Before July 1, select untested, one, \$1; 6, \$5; tested, one, \$1.25; 6, \$7; select tested, one, \$1.75; 6, \$9. Breeders, \$5. After July 1, select untested, one, 75 cts.; 6, \$4; 12, \$7; tested, one, \$1; 6, \$5; 12, \$9. Select tested, one, \$1.25; 6, \$7; 12, \$18. Breeders, \$4; 10 per cent discount on 30 days' advance orders on all queens to be mailed after June 20. Safe delivery guaranteed in United States and Canada. Reference, First National Bank.

J. M. GINGERICH, Arthur, Ill.

POULTRY

FOR SALE.—Thoroughbred Sicilian Buttercup eggs, \$1.50 for 15. D. PATTEE, Box 199, Rt. 4, Ashtabula, O.

Buckeye Incubators, Kant Krowd Hoover, let me tell you about them. E. O. WALTZ, Medina, Ohio.

FOR SALE.—Sicilian Buttercup eggs for hatching, \$1.50 per 15 eggs.

L. S. GRIGGS, 711 Avon St., Flint, Mich.

Stock and eggs for sale, all leading varieties; also geese and Belgian hares. Catalog free.

LEVI STUMBS, Richland Center, Pa.

Pure-bred Indian Runner ducks, snow-white eggs, 15 for \$1.00; 100 for \$6.00. J. C. WHEELER, 921 Austin Boul., Oak Park, Ill.

Sicilian Buttercups. One utility flock. Eggs, \$1.00 per 15; unsatisfactory hatches replaced at half price.

WALTER M. ADEMA, Berlin, Mich.

LEGHORNS.—Eggs for hatching. S. C. W. Leghorns, \$5.00 per 100; \$1.00 per 15. Send for catalog.

WOODWORTH FARM, Wilton, Ct.

Eggs.—20 for \$1.00; leading varieties prize poultry, pigeons, hares, etc. Booklet free. Large illustrated catalog, 10 cts. F. G. WILE, Telford, Pa.

S. C. White Minorcas, \$3.00 per 15; R. C. Buff Leghorns, S. C. Brown Leghorns, and Partridge Wyandottes, \$1.00 per 15.

HILLCREST FARM, Winchester, Ind.

Corning Strain direct, S. C. W. Leghorn eggs and day-old chicks for sale. The strain that weigh, lay, and pay. Also B. P. Rocks at farmer's prices.

F. J. ARMSTRONG, Nevada, Ohio.

Runner Duck Eggs.—Fawn, white-egg strain, \$1 per 12 eggs. Single-comb R. I. Red eggs, and day-old chicks. Tompkins strain.

SARAH WIDRIG, Rt. 29, Burt, N. Y.

S. C. W. Orpington eggs, 15, \$3.00; 80, \$5.00; direct from Kellerstrass progeny of "Peggy," \$10,000 hen." Also Indian Runner duck eggs, 10 cts. each, white and fawn. I. F. MILLER, Brookville, Pa.

Royal Blue Orpingtons, Nicholson strain. Blue Andalusians; also pure-white Indian Runner ducks, blue-ribbon winners. Eggs for sale. Write me for special prices and description.

H. R. ROHR, Buckhannon, W. V.

Runner and Pekin Ducklings and hatching eggs. White-egg strain, Blue-ribbon stock. Also drakes. Catalog for stamp.

THE DERROW TAYLOR CO., Newark, N. Y.

FOR SALE.—Eggs, 15 for \$2; cockerels, \$3; "blue-ribbon stock." Columbian Wyandottes and Light Brahmans. Twenty years a breeder.

AARON J. FELTHOUSE, Elkhart, Ind.

Eggs from a heavy-laying strain of White Indian Runner ducks, \$2 per 18, \$10 per 100. In the hottest competition the past winter I took every blue ribbon wherever shown. I guarantee a pure-white-egg strain. WM. DROMM, Rt. 2, Schenectady, N. Y.

MISCELLANEOUS

FOR SALE.—Pheasants and eggs.

S. V. REEVES, Haddonfield, N. J.

PRINTING.—250 note-heads, 250 envelopes, \$1.50: 500, \$2.25; 250 business cards, \$1; 500, \$1.50. Printed to your order. Good quality stock. Satisfaction guaranteed. Address

GEORGE GOVER, Bellevue, Ohio.

HELP WANTED

WANTED.—Being disappointed in my help not coming after hiring them, I should like at once a young man for the season of 1914.

FRANK C. ALEXANDER, Delanson, N. Y.

WANTED.—Reliable man of good habits to work with bees the coming season. State age, experience, and wages first letter.

THE ROCKY MOUNTAIN BEE CO., Forsyth, Mont.

WANTED.—Man (married preferred) experienced in queen-raising; employment by the year on a salary and percentage.

ODDENSEN BEE AND HONEY CO., Ogden, Utah.

SITUATION WANTED

Position wanted by expert beekeeper. Address B. W. WELLS, Grand Rapids, Wis.

BEEKEEPERS' DIRECTORY

If you need queens by return mail send to J. W. K. SHAW & CO., Loreauville, Iberia Parish, La.

Nutmeg Italian queens, leather color, after June 1, \$1.00 by return mail. A. W. YATES, Hartford, Ct.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York.

QUEENS.—Improved red-clover Italians bred for business June 1 to Nov. 15, untested queens, 75c each; dozen, \$8.00; select, \$1.00 each; dozen, \$10; tested queens, \$1.25 each; dozen, \$12.00. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Boyd, Ky.

SPECIAL NOTICES

BY OUR BUSINESS MANAGER

CHICAGO BRANCH IN NEW LOCATION.

Our Chicago branch office, which for the past five years has been at 213 Institute Place, near Chicago Ave. station of the Northside elevated railway, is now located at 215 W. Ohio St., just six blocks south of the last location, and two blocks south of the location previous to five years ago. We are now on the second floor.

A BARGAIN IN ROTARY PUMPS.

We have a number of half-inch rotary pumps which, for thick honey, have proven not quite adequate in rapid work, but which for water or other liquids will handle two gallons per minute at 100 revolutions. Weight, without pulley, 5 lbs. Will furnish them at special price of \$5.00 each while present stock lasts.

A Preacher to the Nation

"Mount Vernon is the greatest thing in this country," said a man who had just returned from a visit to Washington, and the home of our first President.

He is a person who has traveled both here and abroad, and who all his life has been accustomed to wealth, beauty, and comfort. In his native city he can see every day a dozen residences that cost more than Washington's simple house, and that occupy more ostentatious grounds; but in none of them can he or any other person find the quality that impressed him in Mount Vernon.

Nearly every visitor to the home of our first President is affected in the same way. It is not the extent of the place, for it measures only two hundred acres, nor is it the size and elegance of the house, or the character of the furniture within it; rather is it an atmosphere of dignity, of calm, of restfulness—the absence of ostentation. Here lived one of the great historic figures of all time, and because he was great—because he had personality—he impressed himself on the house in which he lived, and on the grounds on which it stands. It is Washington himself that we feel at Mount Vernon.

To one who, in this day, strolls through the well-kept buildings, and looks across the green lawns to that beautiful vista beyond the Potomac, it seems incredible that the noble place should ever have been hawked about the country in the vain effort to find a purchaser; that Congress should have refused to buy it; that it came, indeed, perilously near to falling into the hands of a man who wished to make "a fashionable beer garden" of it. To the patriotic women of the country, and especially to a patriotic woman of the South, we are indebted, as a nation, for this national shrine.

It is never possible to gauge the influence of such a monument. Those who feel most deeply are usually the least ready with words to express their feelings, and many are conscious of no impression except that of mild interest in a historic survival. There is, nevertheless, a constant elevating influence in every acre of the sacred soil of Mount Vernon, and in every other place that holds up to an ostentatious age a picture of the simple dignity that our forefathers knew so well, and that we find it so difficult to attain.—*The Youth's Companion*.

I am having good success making foundation on the mill I bought of The A. I. Root Co. a few weeks ago. Oh how I can now help my bees along making comb! God bless the inventor of this machine. May he live a long and happy life, is the prayer of a Mississippi beeeman.

Rosetto, Miss., March 27. J. P. McCARBBY.

PUBLICATIONS ON BEE CULTURE

(Please use coupon below, check-ing the numbers of items wanted)

The pamphlets and booklets listed below are of more than ordinary interest.

- 1 MY FIRST SEASON'S EXPERIENCE WITH THE HONEYBEE. By the "Spec-tator," of the *Outlook*, of New York. A ten-page leaflet detailing the experiences of this well-known writer. You will read the leaflet through before you lay it down. Free.
- 2 THE BEEKEEPER AND FRUIT-GROWER. A 15-page booklet giving actual facts regarding the value of bees to fruit, and showing how beekeeping may be doubly profitable to the fruit-grower. Fruit-growers are realizing as never before the necessity of having honey-bees in close proximity to their blossoming fruit. Free.
- 4 CATALOG OF BEEKEEPERS' SUPPLIES. Our complete catalog will be mailed free to any address on request.
- 7 SPRING MANAGEMENT OF BEES. A 14-page booklet detailing the experiences of some successful beekeepers, and giving instructions on this ofttimes perplexing matter. Price 10 cents.
- 8 HABITS OF THE HONEYBEE. By Dr. E. F. Phillips. A somewhat scientific handling of the habits and anatomy of the bee. Price 10 cents.
- 9 HOW TO KEEP BEES. A book of 228 pages detailing in a most interesting manner the experiences of a beginner in such a way as to help other beginners. Price \$1.00 postpaid.
- 10 THE A B C OF BEE CULTURE. A complete encyclopedia of bees, of 712 pages, fully illustrated, \$2.00 postpaid; half leather, \$2.75.
- 11 GLEANINGS IN BEE CULTURE. A 64-page illustrated semi-monthly magazine—the leading exponent of bee culture in this country. Ten cents per issue, but to new subscribers we will furnish it six months for 25 cents.
- 12 BACK-YARD BEEKEEPING. Six interesting lessons written in readable newspaper style. Many facts encouraging the "city-bound" man or woman with the back-to-the-land longing. Free.
- 13 THE BUCKEYE BEEHIVE, or the management of bees in double-walled hives. Of special interest to the amateur beekeeper. The most complete booklet we publish for free distribution. Illustrated throughout; 84 pages.
- 14 ADVANCED BEE CULTURE. A beautifully printed book. Best plate paper has been used throughout its 200 pages, with the result that its many fine illustrations are unusually clear in every detail. Bound in attractive and substantial cloth; \$1.00 per copy, postpaid.

The coupon below may be used as an order sheet by properly checking the numbers of items wanted, and adding your signature, and remittance if required.

CUT COUPON HERE

The A. I. Root Co., Medina, Ohio.

Please send me the items checked. I enclose

\$..... to cover the cost.

1	2	4	7	8	9	10	11	12	13	14
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Name

Street Address or R. F. D.

Town

B. C. State.....

Convention Notices

The Beekeepers' Association of Mercer County, W. Va., met at Matoaka, W. Va., the third day of this month. This was the most interesting meeting we have ever had. We now have an organization with H. I. Cook, Dott, W. Va., President; W. R. McComas, Matoaka, W. Va., V. P.; and H. E. Cook, Matoaka, Secretary. Can any one tell us whether there is any other organization of beekeepers in West Virginia? We are desirous of making our organization cover the State. Our present membership is fifteen. Our next meeting will be at Matoaka, May 8.

Dott, W. Va., April 14. H. I. COOK, Pres.

PANHANDLE BEEKEEPERS' ASSOCIATION GOES ON RECORD AGAINST SPRAYING FRUIT TREES WHILE IN BLOOM.

We have a clipping from the *Wheeling Intelligencer* that informs us that the semi-annual meeting of the Panhandle Beekeepers' Association was held a few days ago (date not given) in the parlors of the Grand Central Hotel of that city. The following officers were elected for the ensuing year:

President, Henry Lewedag, Wheeling; Vice-president, L. C. Seabright, Blain, O.; Secretary and Treasurer, John Rood, Bellaire, O.

We are pleased to note that the Association went on record as deplored the action of many fruit-growers in spraying fruit trees while in bloom. Recommendations for spraying seasons contained in State and Government bulletins were heartily endorsed.

IOWA SUMMER MEETINGS.

The Iowa Beekeepers' Association has arranged for a series of summer meetings, the first of which will be held on May 19 and the last on Aug. 20. Most of these meetings will be in the nature of picnics. Everybody will bring a basket of lunch, the wife and babies, and enjoy the day.

The first field day will be held near McGregor or North McGregor on May 19. It is desired that the honey-producers of Iowa and Wisconsin meet together on this occasion, and McGregor has been chosen as a convenient point. N. E. France, of Wisconsin, will be the principal speaker, and a large attendance is expected. Beekeepers from considerable distances have already signified their intention to be present.

At Colo, June 10, the Ladies' Aid Society will serve dinner at a reasonable price, and the field meet will be held at the Hall home apiary, which is within easy reach of the station. Mr. Hall's big honey-house will be used for a convention hall in case of rain. Professor C. E. Bartholomew, of Ames, will give the principal address. So much interest has been manifested in the Hall methods of honey production that a good attendance is assured.

At Forest City, June 17, the meeting will be held on the grounds of Hon. Eugene Secor, former president of the National, and one of the best-known beekeepers of the middle West, who has kept bees continuously in his present location for forty years. It is hoped that a liberal representation of Minnesota beekeepers will be present here, as it is but a few miles from the State line.

At Des Moines, July 15, a big day is planned at the Dustman apiary, which is convenient to the car line. The committee is planning a series of interesting demonstrations. The central location and splendid railroad facilities from all directions make Des Moines very easy of access.

At Mt. Pleasant, July 28, is to be held the fifth field meet of the season. The committee is already making plans for the program with C. P. Dadant, of Illinois, as one of the speakers. Beekeepers from Western Illinois and Northeast Missouri will find Mt. Pleasant easy to reach, and should plan to come.

On August 12, at Clarinda, the friends from Nebraska and Missouri will find a point easy of access, and the Strong apiary will be the place of meeting. Mr. Strong, the well-known queen-breeder, has been keeping bees for almost half a century, and will demonstrate his methods of queen-rearing. The program will be announced later.

For several years the beekeepers in the vicinity of Sioux City have held a tri-state meeting, the date of which this year is set for Aug. 20. Friends from South Dakota and Nebraska meet with Iowa beekeepers for an annual picnic at Riverside, and the committee in charge always plan an interesting time.

A meeting will also be held at the Coverdale apiary, at Delmar, the date of which will be announced later. Coverdale has become famous as a grower of sweet clover as well as being an extensive honey-producer. In planning these meetings the association has tried to place them so that at least one would be within reach of every Iowa beekeeper; and we hope note will be made of the times and places, and that friends from other States will attend in goodly numbers.

F. C. PELLETT.

FIELD-DAY DEMONSTRATION TO BE HELD AT FORKS OF CREDIT, ONT., CAN., MAY 25, 1914.

The First Canadian National Field Day Meet will be held on Victoria day, May 25, 1914, at the apiary of Mr. H. G. Sibbald, past president of the Ontario Beekeepers' Association, at the Forks of the Credit, Ontario.

This great event, which has slowly been gathering force since last December, has now reached that point where the various committees which have been working on the plan feel that it will surpass anything heretofore attempted in the British Empire.

Plans have been laid for handling a great crowd. Members of committees will be at the various stations from the city up to assist the stranger and bid him welcome. Special coaches will be placed on the train for the beekeepers' accommodation, and the good old-fashioned farmers' hayrack will convey the jolly crowd to the yard, some half mile away.

All the beekeepers within reasonable distance are requested to bring their well-loaded baskets, and prepare for two meals (noon and evening), to take care of those who come from long distances.

To the beekeeper confined within the narrow limits of city life this field day and picnic offers a day of relaxation and freedom from the cares and worries of business, while the producer from the country is afforded an opportunity to meet the city man.

The editors of *GLEANINGS* and the *American Bee Journal* have consented to be present and take a part in the work of demonstration, while our own fair Province will have its corps of brilliant men on the "firing line."

For a day's outing no spot in all this magnificent country of ours can surpass the beautiful Forks. Poets have sung its praises; historians have recorded its beauties, but the tongue of man cannot justly describe the sublime and majestic scenery.

Then, dear beekeeper, lay aside your cares and anxieties, come along and bring your families, and enjoy the pleasure of friendly intercourse with the great men of our ranks.

The committee herewith present the program with a feeling of pardonable pride. Never in the history of beedom in Canada has such a brilliant galaxy of men been brought together for such a purpose. In the evening of life, while dwelling on sweet thoughts of the past, may this great field meet induce you to say:

"Backward, turn backward, O time, in thy flight,
Make me a child again just for to-night."

PROGRAM.

- C. P. R. train leaves Union at 7:20 A. M.; arrives at Forks of Credit at 9:25 A. M.
- 10:00 A. M.—General inspection of apiary, honey-house appliances, etc.; conducted by Mr. Sibbald.
- 10:45 A. M.—Mr. J. L. Byer, President of the O. B. K. A., will officiate.
- 11:30 A. M.—Greetings to all sister organizations and delegates.
- 12:00 M.—Lunch, provided by ladies.
- 1:15 P. M.—Mr. C. P. Dadant, editor of the *American Bee Journal*.
- 2:15 P. M.—Mr. Morley Pettit, Provincial Apriarist.
- 3:00 P. M.—Mr. E. R. Root, editor *Gleanings in Bee Culture*.
- 4:00 P. M.—Mr. M. B. Holmes, Athens, Ont., director O. B. K. A.
- 4:25 P. M.—Mr. Wm. Couze, Streetsville, Ont.
- 5:15 P. M.—Lunch, toasts, greetings, etc.
- Train leaves Forks at 6:15 P. M.; arrives at Union at 8:25 P. M.
- Ladies' committee (white badge), Mrs. Sibbald, Pres. Please leave baskets with ladies' committees.
- Information committee (blue badge), all stations.
- Field committee (yellow badge), Mr. Wilson, President. Fare, round trip, \$1.15.

G. R. CHAPMAN, Pres.

CHAS. E. HOOPER, Sec.
Toronto, Ont., April 8, 1914.

The Old Original 1853 Edition of Langstroth Reprinted

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Here is what Others say:

It is very interesting, not only from a sentimental but from a practical standpoint.
Guelph, Can., April 21. MORLEY PETTIT.

The dear old man was one of God's very own; and to have this reminder of him on my book-shelf will give me much pleasure.
Sacramento, Cal., April 18. A. J. COOK,
State Commissioner of Horticulture.

It seems good to read again this charming work. It must ever remain to the American beekeeper a classic, both instructive and fascinating.
Middlebury, Vt., April 15. J. E. CRANE.

It is well to have Langstroth reprinted; and if all would read it, many would be saved from going over well-thrashed straw. I have several of the early editions, and am glad to add this to them.
PROVIDENCE, R. I., April 20. ARTHUR C. MILLER.

This will preserve the original for future generations.
Marietta, N. Y., April 16. G. M. DOOLITTLE.

I am much pleased with the reprint which has come to hand.
Amherst, Mass., April 15. B. N. GATES.

I have the copy of the reprint of the 1853 Langstroth. I have long admired the writings of Langstroth, and had read his original edition with great interest. It is especially interesting in that he discusses some of the points that are annually "discovered" by others who are unfamiliar with the literature on bees. I feel that it will benefit American beekeepers to become familiar with this book, and trust that it will have a wide distribution. The book is a classic, and should be known to all good beekeepers.

Washington, D. C., April 16. E. F. PHILLIPS.

While some of our readers may, perhaps, feel that this work would be out of date, the fact is,

FATHER LANGSTROTH WAS 60 YEARS AHEAD OF HIS TIME.

So much so that he revolutionized beekeeping throughout the world.

The book that helped to bring about this remarkable revolution is well worth reading to-day. It is full of valuable tricks of the trade.

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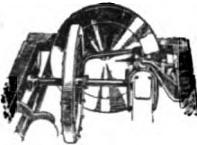
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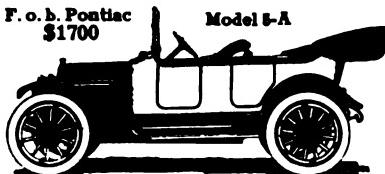
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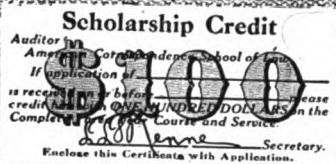
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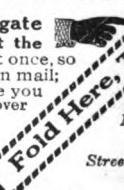
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Gleanings *in* Bee Culture



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FOUNDATION—This is an excellent time to order foundation and to put it into sections and frames, now when you have the spare time, thus preparing you to go into the season with a good start. Here's what Mr. J. J. Wilder, Cordele, Ga., says about our foundation: "Your foundation is the best I ever bought, and I am more than pleased with it." Mr. Wilder is one of the largest beekeepers in the country.

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HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

NATIONAL BEEKEEPERS' ASSOCIATION GRADING RULES

Adopted at Cincinnati, Feb. 18, 1913.

Sections of comb honey are to be graded: First, as to finish; second, as to color of honey; and third, as to weight. The sections of honey in any given case are to be so nearly alike in these three respects that any section shall be representative of the contents of the case.

I. FINISH:

1. *Extra Fancy*.—Sections to be evenly filled, comb firmly attached to the four sides, the sections to be free from propolis or other pronounced stain, comb and cappings white, and not more than six unsealed cells on either side.

2. *Fancy*.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white, and not more than six unsealed cells on either side exclusive of the outside row.

3. *No. 1*.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white to slightly off color, and not more than 40 unsealed cells, exclusive of the outside row.

4. *No. 2*.—Comb not projecting beyond the box, attached to the sides not less than two-thirds of the way around, and not more than 60 unsealed cells exclusive of the row adjacent to the box.

II. COLOR.

On the basis of color of the honey, comb honey is to be classified as: first, white; second, light amber; third, amber; and fourth, dark.

III. WEIGHT.

1. *Heavy*.—No section designated as heavy to weigh less than fourteen ounces.

2. *Medium*.—No section designated as medium to weigh less than twelve ounces.

3. *Light*.—No section designated as light to weigh less than ten ounces.

In describing honey, three words or symbols are to be used, the first being descriptive of the finish, the second of color, and the third of weight. As for example: Fancy white, heavy (F-W-H); No. 1, amber, medium (A-M), etc. In this way any of the possible combinations of finish, color, and weight can be briefly described.

CULL HONEY:

Cull honey shall consist of the following: Honey packed in soiled second-hand cases or that in badly stained or propolized sections; sections containing pollen, honey-dew honey, honey showing signs of granulation, poorly ripened, sour or "weeping" honey; sections with comb projecting beyond the box or well attached to the box less than two-thirds the distance around its inner surface; sections with more than 60 unsealed cells, exclusive of the row adjacent to the box; leaking, injured, or patched-up sections; sections weighing less than ten ounces.

HONEY GRADING RULES ADOPTED BY THE COLORADO STATE BEEKEEPERS' ASSOCIATION, DECEMBER 13, 1911.

FANCY WHITE..—Sections to be well filled, comb firmly attached to all sides and evenly capped except the outside row next to the wood. Honey, combs, and cappings white, and not projecting beyond the wood; wood to be well cleaned; no sections in this grade to weigh less than 13 $\frac{1}{2}$ ounces.

No. 1..—Sections to be well filled, combs firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey white or very

slightly off color. Combs not projecting beyond the wood; wood to be well cleaned; no section in this grade to weigh less than 13 $\frac{1}{2}$ ounces.

CHOICE..—Sections to be well filled; combs firmly attached; not projecting beyond the wood, and entirely capped, except the outside row next to the wood. Honey, comb, and cappings from white to amber, but not dark; wood to be well cleaned; no section in this grade to weigh less than 12 ounces.

No. 2..—This grade is composed of sections that are entirely capped, except row next to wood, weighing from ten to twelve ounces or more, also of such sections that weigh 12 ounces or more, and have not more than 50 uncapped cells all together, which must be filled. Combs and cappings from white to amber in color, but not dark; wood to be well cleaned.

EXTRACTED HONEY..—Must be thoroughly ripened, weigh 12 pounds per gallon. It must be well strained, and packed in new cans. It is classed as white, light amber, and amber.

STRAINED HONEY..—This is honey obtained from combs by all other means than the centrifugal extractors, and is classed as white, light amber, amber, and dark; it must be thoroughly ripened and well strained. It may be put up in cans that previously have contained honey.

INDIANAPOLIS..—Fancy white comb is being offered here at 16 to 17 cents per pound; amber comb, 14 to 15; white-clover extracted, 9 to 10 in 5-gallon cans. Much comb honey is being held here; but at this writing there is very little demand. Extracted is in fair demand. Producers are being paid 32 cents cash for beeswax, or 3½ in trade.

Indianapolis, May 5.

WALTER S. PODUER.

ZANESVILLE..—No. 1 to fancy white comb is quoted at 16 $\frac{1}{2}$ to 18 $\frac{1}{2}$ in a jobbing way; 18 to 20 wholesale. Best white extracted in 60-lb. cans, 9 to 10. These quotations are for white clover. Western honeys rule about a cent less. Market firm, but rather quiet. Producers receive for beeswax 32 to 33 cash, 34 to 35 in exchange for supplies.

Zanesville, May 5.

EDMUND PEIRCE.

DENVER..—The market still remains about the same. It is cleaned up on comb-honey pretty well, and looks as though it would be entirely used before the new crop comes on. We are jobbing as follows: Strictly No. 1 white, fancy stock, brings, per case, \$2.52; choice, good color and heavy weight, \$2.39; No. 2, well finished, fair color, \$2.25; white extracted, 8; light amber, 7. We pay 32 cash and 34 in trade for clean yellow wax delivered here.

COLORADO HONEY-PRODUCERS' ASSOCIATION, Denver, May 6. FRANK RAUCHFUSS, Mgr.

ST. LOUIS..—Our honey market is very dull, and but little comb honey is selling. Extracted honey is in a little better demand than comb honey, but stocks here are very light. Comb honey is plentiful, and it looks as if a great deal of it would be carried over into next season. We are quoting honey, in a jobbing way: Southern extracted in barrels, 6½ to 8%; 5-gallon cans, 6½ to 7%; dark, ½ to 1 ct. less. Comb honey, fancy clover, brings 15 to 16; light amber, 13 to 14; amber, 11 to 12; dark and inferior, less; by the case, fancy clover, from \$2.75 to \$3.00; light amber, from \$2.50 to \$3.00; amber, \$2.00. Beeswax is very firm, and quoted at 34 $\frac{1}{2}$ for prime; impure and inferior, less.

R. HARTMANN PRODUCE CO

St. Louis, May 5.

LIVERPOOL..—The market for all classes of honey is flat. The demand during the past winter has been the worst for many years, and sellers are left with heavy stocks of Chilian which look like remaining on hand for many months to come. The prices quoted are \$5.04 for no pile, \$5.52 for pile 3; \$6.00 to \$6.24 for pile 2; \$6.72 to \$7.20 for pile 1. To all intents and purposes the sales since the beginning of the year have been merely retail quantities. There have been very small sales of Californian at \$10.08 to \$10.80 and Jamaica at \$6.00 to \$7.20. The beeswax market is bare, and there is a good demand for Chilian f. a. q., in the neighborhood of \$38.88 per cwt. c. i. f.; but so far buyers have been unable to get anything under \$40.08.

Liverpool, April 16.

TAYLOR & CO.

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New 64-page Catalog

Our new 1914 catalog contains double the pages of former editions and requires extra postage. It is filled from cover to cover with complete lists of goods in every line to meet every requirement of beekeepers. If you haven't received a copy when you read this, be sure to ask for one. It will save you money.

New Features for 1914

Few radical changes have been made this season. It should be noted, however, that we will send out with regular hives, unless otherwise ordered, the metal telescopic or R cover with super cover underneath. The side rail for the bottom-board will be extra length so as to overcome the difficulty experienced by some last season. Improvements have been made in extractors. We shall carry a very heavy stock so that orders may be filled with our usual promptness. Write us your needs.

C. H. W. Weber & Co.

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Cincinnati, Ohio

Gleanings in Bee Culture

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Editor

A. I. ROOT
Editor Home Dept.

H. H. ROOT
Ass't Editor

J. T. CALVERT
Business Mgr.

Department Editors:—Dr. C. C. Miller, J. E. Crane, Louis H. Scholl, G. M. Doolittle, Wesley Foster, J. L. Byer, P. C. Chadwick.

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FOUND A COPY OF GLEANINGS IN THE STREET; A KIND WORD WITH A MORAL TO IT.

I am very sorry my subscription got so far in arrears, but it quite slipped my notice, and I should be very sorry not to receive the paper, as I am sure I owe a lot to A. I. Root. I was just a man working for a wage with no thought of bettering myself; but one day I found a copy of GLEANINGS in the street. I read it, got the bee fever, went home, and nearly talked the good woman into a fit. I bought four hives with bees, and in five years have made 100 colonies, and, what is better, have bought five acres of land, and half paid for it, all out of the bees. Both the wife and myself would like to shake hands with A. I. Root and thank him personally for the many good talks he has given us in Our Homes; but as that cannot be, we can only wish him many years to continue the good work.

Paki Paki, N. Z., Feb. 19. H. SHEPHERD,
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Gleanings in Bee Culture

DEVOTED TO HONEY, BEES, AND HOME INTERESTS.

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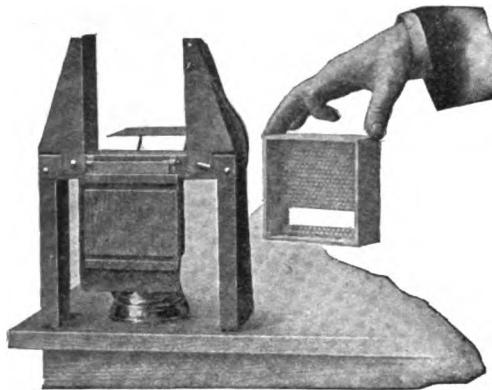
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A new machine of pressed - steel construction for folding sections and putting in top and bottom starters all at one handling.

With top and bottom starters the comb is firmly attached to all four sides, a requirement to grade fancy. Increase the value of your crop this season by this method.

The editor of the "Beekeepers' Review," in commenting on things at the recent Detroit, Mich., beekeepers' convention, stated:

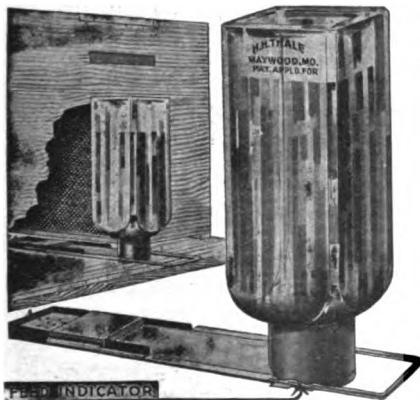
It was the consensus of opinion of those who saw the machine work that it was the best thing for the purpose ever brought on to the market.

The C. & N. W. Beekeepers' convention in December unanimously adopted the following resolution: "Whereas this convention has been impressed by the exhibit of the Woodman Combined Section-press and Foundation-fastener, and believes that the same is practical, and a labor-saver for the bee-keepers at large; Therefore, be it resolved that the Chicago-Northwestern Beekeepers' Association in convention assembled do heartily endorse the above device as a practical machine for beekeepers producing comb honey," I. E. PYLES, ARTHUR STANLEY, W. B. BLUME."

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JOHN ROBBINS.

Poultney, Vt., March 31, 1914.

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THOS. CANNIFF.

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25 "	7.50
50 "	15.00
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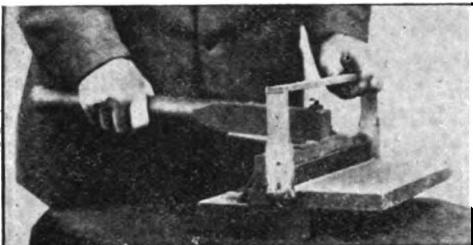
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Department 2

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The A. I. Root Co., Medina, Ohio

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ESTABLISHED 1869

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My new catalogs have been distributed. If any of my friends have failed to receive theirs, please write for another. If more convenient you may make up your order from the Root Catalog---our prices being identical. For very large orders at one shipment, write for an estimate, and I can save you something by following the factory schedule.

I shall be glad to hear from my friends as to how bees are wintering and springing, and as to prospects for clover.

Walter S. Pouder

878 Mass. Ave., Indianapolis, Indiana

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Then the particular work commences. Here is where the intricate machinery gets the strips, rabbets them, scores them, dovetails them, and then the finished sections are packed away. But the secret is here: This delicate machinery is cared for like a trotting horse. The Lewis section foreman has been watching it, caring for it, keeping it right for the past thirty years.

He is Still on the Job Making Lewis Sections for you.

No matter what Hives, what Frames, what Supera, and what not you use,

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G. B. Lewis Company, Sole Manufacturers Watertown, Wis.

Thirty Distributing Houses. . Send for the name of the one nearest to you.

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. . . THE . .

**N^{EW} American Bee Journal
IT PLEASES**

The American Bee Journal is getting better each month. I read and reread the articles about France, Europe, New Zealand, Japan, and other countries. A good many of us beekeepers will never be able to visit these countries, and I think these articles make a big improvement in the *American Bee Journal*. I hope they will continue to come each month.

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C. P. DADANT

DR. C. C. MILLER

American Bee Journal, Hamilton, Illinois

Gleanings in Bee Culture

Published by The A. I. Root Co., Medina, Ohio.

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MAY 15, 1914

NO. 9

EDITORIALS

THE AMERICAN BEE JOURNAL thinks Dr. Miller is a half century younger than he says he is, viz., 38 instead of 83. If any man is young in spite of his years, Dr. Miller is that man.

WE stop the press to-day, May 13, to announce the successful arrival of the first carload of 300 colonies of bees from Apalachicola, having been *en route* (thanks to the railroad companies) only five days. Every colony, thanks also to our good friend M. J. Deyell, who came with the bees, is, so far as investigated, in good order. Further particulars in our next issue.

The National Net-Weight Law

THE reader's attention is directed to the article on national and State laws regarding the net weight on honey, on page 385 of this issue. Every one who has honey for sale (and that, of course, means most beekeepers) should read this very carefully.

Cartoons for Gleanings

WE are pleased to announce to our readers that we have engaged one of the best cartoonists in the United States—Donahey, of the Cleveland *Plain Dealer*—to make a set of pictures for GLEANINGS. Mr. Donahey is a back-lot beekeeper. He has kept bees long enough to acquire a good working knowledge of the business, especially back-lot beekeeping. We have already received a series of his cartoons; and to say they are rich is putting it mildly. They will begin in our next issue.

Beekeeping in Alaska

IT requires somewhat of a stretch of the imagination to think of flowers and bees in Alaska; but the flowers and bees are there nevertheless. We give herewith a clipping from the *New York World* of October 20, sent us by Mr. A. T. Cook.

FAIRBANKS, Alaska, Oct. 18.—Two hives loaded with bees have arrived here, the first ever shipped to the interior of Alaska. They are for Mrs. Ed Wickham and Mrs. M. M. Truxton, who will experi-

ment in bee culture. The fields and gardens in the Tanana Valley abound in flowers from the middle of May until the early part of September, and it is believed bee culture will be a success here.

Two different copies of GLEANINGS have been going to Alaska regularly, and it is to be hoped that the nucleus started by the two colonies mentioned in the clipping above may be increased as time goes on. Who can give us further particulars in regard to possibilities in Alaska?

Correction; Bees Wintered Well Around Philadelphia

IN our April 15th issue, p. 282, editorial department, we stated that the bees had wintered quite well all over the country except in the vicinity around Philadelphia. Mr. F. Hahman, of that city, Secretary of the Philadelphia Beekeepers' Association, says that the bees never wintered better, and wondered where we secured our information. We saw a couple of letters from parties in the vicinity of Philadelphia early in the season, stating that they were fearful there would be a severe loss in and about the city, owing to the cold weather, and it looked like it at the time.

Beekeeping in Brazil

BRASILIANISCHE BIENENPFLEGE, published in the German language at Porto Alegre, Brazil, publishes an account of our experiment with shipping bees to Florida, in its February number, and has the following to say:

It is quite a distance from Medina to Florida, but thus far the experiment seems to have been successful, and it seems to us that our German beekeepers might well consider this matter of migratory bee-keeping, which could be practiced to a considerable extent in this country as well.

It may interest some of our readers to know that, while the Portuguese language is the official language of Brazil, the German language is spoken almost exclusively in the southern part of that country, where there are extensive German settlements, and, incidentally, a large number of German beekeepers.

The fact that beekeeping pays in Brazil, and that the industry has developed to a considerable extent, would seem to be proven by the existence of a number of bee-papers, the one mentioned above being in its 16th year, and also by a number of beekeepers' associations. *Brasilianische Bienenpflege* is the organ of the "Syndicato Apicola Rio Grandense," and is edited by Profesor Emil Schenk, who also has charge of the apicultural section of the Brazilian Department of Agriculture. He has done a great deal to develop modern beekeeping in that wonderful country.

Some Honey; a Crop of 540,000 Lbs. by One Man

MR. EMILIO HERNANDEZ, of Cienfuegos, Cuba, has on hand a crop of 850 barrels of honey, or, more exactly, 45,000 gallons. At 12 lbs. per gallon this would make 540,000 lbs. or 270 tons. Perhaps Mr. Hernandez will be willing to tell us something about his extensive operations in Cuba. We do not know whether he produced these 850 barrels in one season or not; but we infer that he did. Apparently his problem is not so much to produce a crop as to sell it.

Perhaps we ought not to stir up a hornet's nest; but just suppose there were a few hundred beekeepers in the tropics like Mr. Hernandez, and that we had free trade. Free trade or protection, we do not imagine, we have any need to fear very greatly, because we have nearly free trade as it is on honey, and, moreover, we do not, and probably will never have a few hundred or even a dozen beekeepers who will produce 850 barrels in a season.

Prospects for this Season

WITH one or two exceptions the reports of wintering have been most excellent throughout the country. The spring has been favorable, and rains have been frequent enough to keep the soil for clovers sufficiently moist. But it is only fair to say that in our locality, at least, the clovers are not as promising as they were a year ago; that is to say, they are not as abundant, but there may be enough to take care of the bee season later on. There is no reason, however, to suppose there will not be a fair crop of clover. Some of the heaviest honey years have been when clover appeared to be very scarce; but there have been other years when clover was everywhere, and yet not much honey.

Some very fine crops of orange honey have been secured in Florida. One crop, by Prof. E. G. Baldwin, of Deland, Fla., if

we may judge from a liberal sample sent us, is some of the finest orange we ever tasted; in fact, we should call it pure orange honey. Prof. Baldwin will have no trouble in disposing of it.

A New Bee Journal in Porto Rico

THE first few numbers of *El Apicultor*, the organ of the Porto Rico Beekeepers' Association, have just been received, the first number of which publishes a letter written by Dr. E. F. Phillips, dated December 11, 1913, at Washington, D. C., in which he promises to assist the said association in any way that he possibly can. Dr. Phillips expresses the opinion that the island of Porto Rico offers a wonderful opportunity for the beekeeper, and that the formation of the society will undoubtedly help to promote the industry.

Mr. J. W. Van Leenhoff is the editor of the above-mentioned paper, and the said gentleman is likewise the President of the Porto Rico Beekeepers' Association, which has been incorporated as a branch of the National Beekeepers' Association of this country.

Beekeeping has developed in Porto Rico in a most wonderful manner within the last ten years, and we have no doubt that the formation of this association and the publication of *El Apicultor* will help very materially to further the interests of the Porto Rico beekeepers.

Marchant's Scheme of Transferring Not an Entire Success

ON pages 345 and 346 of our issue for May 1 we illustrated and described the A. B. Marchant scheme of transferring bees from box hives into movable-frame hives on a plan that involved but little labor on the part of the beekeeper. This scheme at first worked out all right for Mr. Marchant; but later on it failed so many times that he cannot now recommend it without at least some modification, and has so advised us. Our readers will, therefore, take notice and be governed accordingly.

We were somewhat skeptical, but as the scheme had worked out all right up to that time we thought it worth giving to the public. The difficulty seems to be that the queen will not go above in all cases. Her failure to do this, of course, would make the scheme a failure.

If more of our correspondents would be frank enough to admit that some of their new schemes, after being tried out on a larger scale, are not a success, it would be better for the beekeeping public. Perhaps

the more critical ones will say that it would be better if the editor would go slower before giving them to the world; and to a certain extent that would be correct. But very often a discussion of these new and sometimes not thoroughly tried-out schemes develops a plan that finally proves to be a success. In this particular case Mr. Marchant has modified the plan, and later on will describe it.

Second Annual Report of the State Bee Inspector

WITH the second annual report on inspection in Iowa, the State Inspector, Mr. Frank C. Pellett, has incorporated the papers read at the second annual convention held in Des Moines, December 10, 11, and 12. The report as a whole is a great credit to Mr. Pellett, and will do an immense amount of good throughout the whole State.

Mr. Pellett makes the point that, according to the census report, more than one farmer out of every eight in Iowa keeps bees, but that the average value per farm was only \$17.88 in 1910. However, most of the extensive beekeepers of the State do not reside on farms, and were, therefore, not enumerated.

Referring to the inspection, 311 apiaries were visited, and disease was found in 140. The total number of colonies inspected was 6973; total number diseased, 483. A considerable portion of those found diseased have been treated by the owner. In this connection Mr. Pellett strongly emphasizes the value of educational work.

A good description of the various diseases is given, including the disease sacbrood. There has been some inquiry from our readers of late in regard to this disease, and there seems to be some misunderstanding. We are, therefore, copying here the symptoms of sacbrood given by Dr. G. F. White, of the United States Department of Agriculture, as published on page 15 of the report.

The strength of a colony in which sacbrood is present is frequently not noticeably diminished. When the brood is badly infected, however, the colony naturally becomes appreciably weakened thereby. The brood dies after the time of capping. The dead larvae are, therefore, always found extended lengthwise in the cell, and lying with the dorsal side against the lower wall. It is not usual to find many larvae dead of this disease in uncapped cells. Such brood, however, had been uncapped by the bees after it died. In this disease the cappings are frequently punctured by the bees. Occasionally a capping has a hole through it, indicating that the capping had never been completed. A larva dead of this disease loses its normal color and assumes at first a slightly yellowish tint. "Brown" is the most characteristic appearance assumed by the larva during its decay. Various shades are observed. The term "gray" might sometimes appropriately be used to designate

it. The form of the larva dead of this disease changes much less than it does in foul brood. The body wall is not easily broken as a rule. On this account, often the entire larva can be removed from the cell intact. The content of this sac-like larva is more or less watery. The head end is usually turned markedly upward. The dried larva or scale is easily removed from the lower side wall. There is practically no odor to the brood-combs.

Along the line of treatment the shaking method is given for American foul brood, with some modifications. For European foul brood, queenening with pure Italian stock is recommended, and the shaking plan is also given, being recommended by Dr. E. F. Phillips.

Our Apalachicola Proposition; Four Carloads of Bees to Come Back from One Sent Down

THE last reports from our men in the field at Apalachicola, Fla., go to show that we shall certainly make an increase of three carloads of bees from the one sent down last November, and a strong probability of an additional car, or four cars in all. The first car starts May 8 by way of the river, Bainbridge, Ga., and Cincinnati. If it makes schedule time it will arrive at Medina on the 13th. The next two or three carloads will start May 20 or 22. One man will accompany the first car and two men the next two or three. Unfortunately the backward season in Apalachicola rendered it impossible to move the first car in time to get much of the fruit-bloom in and about Medina; so we have had to scratch around to find bees locally to take care of orchards in this vicinity.

Our boys have been able to secure a fair crop of honey, possibly enough to pay the freight on the bees back. But of this we shall speak more positively later.

The question may be asked whether our scheme of moving bees south for increase and honey, to Apalachicola, has been a success. As yet we are unable to give a definite answer. If we bring back four carloads of bees and twenty barrels of honey, the bees arriving in *good condition*, the venture will pay out well, without question; but

There's many a slip
'Twixt cup and lip.

There are 6000 new combs just drawn from full sheets of foundation. While they have all been wired they will not stand a trip of this kind of some 1200 miles like old combs. If the weather should prove to be extremely warm while the bees are on the way, and if there should be poor connections, we might lose a considerable number of bees on account of these new combs melting down. All of them, however, will be

extracted so as to leave but very little honey in them—barely enough to carry the bees through to Medina.

To keep the bees cool there is nothing like having plenty of water at hand. There will be a barrel of water in each car, and these barrels will be replenished as often as they become empty. Past experience has shown that a carload of bees will use up a large amount of water—four or five barrels, perhaps, to the trip. If we can keep the bees cool by spraying or “wet blanketing” them, and if we can make good connections all along the route, it is safe to conclude the bees will get through in good order. In the mean time we are getting in connection with all the railroad people along the route to see that there is no delay. While the cars are moving there is no trouble to keep the bees cool; but when they stop for a few hours in midday the man in charge is kept busy in watering the bees.

The cars are to be hooked on as close to the locomotive as possible so as to avoid some of the bumping and to keep the bees out of the sulphurous smoke as much as possible when going through tunnels.

It is not expected that the men *en route* with the bees will have a Pullman-car trip. They will have to be up with the bees almost night and day to repair staging when an occasional bump jars it loose, and to fix the screens and give the bees water whenever they get hot. All kinds of weather, cinders, locomotive smoke, rain and shine, hot and chilly weather, cold lunches—all this is hard on the men, and of course it means extra time allowances. Taking it all in all, there are some heavy expenses in connection with a proposition of this kind; and the average beekeeper should go slow about making such a venture unless he can, from a financial point of view, stand a loss. If he moves all his bees south and then loses 50 per cent of them in moving back, even though he does make a good increase, he would lose out.

In our case we have one more bridge to cross, and that is to get the bees north in good condition. We shall be wiser and perhaps sadder by our next issue.

It is proper to say in this connection that the average northern man, even though he has had a large amount of experience in keeping bees will probably fail the first year after going south, for the reason that conditions are so very different. In our case we put a man in charge, Mr. J. E. Marchant, who was born and had been reared in Apalachicola, and who, under his father, A. B., had a very large experience in managing bee yards on the Apalachicola River before he went north. It takes a man of experi-

ence, both in the North and South, to make a scheme of this kind work out.

If we make a success of the plan this year, we ought to be able to do as well or better another year, because conditions this winter have been unfavorable. The cool months of February and March gave Mr. Marchant the blues. He had set his stakes for three carloads of bees and twenty barrels of honey; but when the whole of February turned out to be so cold, and the fore part of March being but little better, he began to be discouraged. But he made up his mind that the plan would *have* to succeed. So he has been crowding the queens by every means possible during the good weather we did have.* Had it not been for the unfavorable February and March we should probably have had all the bees up here in time to catch the apple-bloom. As it was, Mr. Marchant thought it best to catch the two tupelo flows and then move north.

The boys have been busy during the bad weather in making up hives and frames, and putting in foundation. No one knows, except the one who has tried it, that the nailing together and putting sheets of foundation in some 6000 metal-spaced Hoffman frames is no small job. No one man can do it in a month. In fact, it took an average of three men to do all the nailing and painting when they could not work the bees, between two and three months. They nailed and painted 500 hives with covers and bottoms, and 500 three-frame nuclei. Each colony and nucleus will be supplied with a queen—not of our own rearing, but of the rearing of Mr. A. B. Marchant, the father of the junior Marchant managing our bees. It will be seen, then, that we must charge up against the Apalachicola proposition queens, sugar for feeding, gasoline, launch rental, and a considerable amount of labor as well as freight; but as it would have cost us nearly as much to put the stuff together and paint it at our Medina factory, we will credit up this cost when the bees arrive in Medina.

There is one more item of expense, and that is platforms to hold the hives, and buildings to house the men during the bad weather; interest and depreciation. No one should get the idea that there is big money in moving bees south for increase and honey. There are some big risks as well as expenses.

* He has been crowding his queens so hard in brood-rearing that many of them are failing, and the bees are superseding. When we consider the fact that the bees have increased from 275 colonies, not overly strong, to 800 fair colonies, and 500 three-frame nuclei, we can readily understand why the queens are beginning to fail and the bees to supersede them.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.

SMITH gets 50 pounds of honey per colony; Jones gets 60 pounds. What per cent greater success has one than the other? I venture the guess that there isn't a man connected with The A. I. Root Co. who can give the correct answer in less than ten words. Nor a woman either. [The answer seems easy enough. What is the "catch"? We do not catch on.—ED.]

TERRY and wife use $3\frac{1}{2}$ gallons of honey a year, p. 280. That's $1\frac{3}{4}$ gallons each. I use $3\frac{1}{4}$ gallons a year for my morning drink alone. All the same, you're right that it would give honey a boom if all would use as much as the Terrys. It would take for the United States about 2,000,000,000 lbs. My only reason for using honey instead of sugar in my drink is that it is better for health, and I'm fairly long on health.

D. M. MACDONALD, *British Bee Journal*, 72, questions calling worker-bee "fellows," I suspect because they are females. The Standard dictionary gives as the first definition of *fellow*: "A person or individual: a term of familiarity applied to almost any person of the male sex, and occasionally to a woman." That ought to let in worker-bees, especially where "votes for women" have given women equal fellowship with men. But when our Scotch friend, speaking of the Americanisms of an author, says, "His roof is a 'lid,' his flightboard an 'apron,' and he speaks of the 'Porter' 'escaping bees,'" I'd like to have him name the author. A roof is always called a "cover" here, and I've never seen either of the three terms he quotes in American writing, although I have seen "lid" in British writing.

"BEES can carry a blight of any kind," p. 300. I wonder. "Active hold-over cankers exude a sticky ooze, attractive to insects, . . . and any insects visiting such cankers will become covered with the germs," p. 299. Now, did you ever see bees visiting such cankers? Don't they go straight for the blossoms and alight nowhere else? You know well that bees are strongly inclined to stick to the same flower or other source of sweets. Now, suppose a bee should visit a canker; wouldn't it keep on visiting cankers? so where's the chance of carrying infection to trees with no canker? [You are taking our language too literally. Bees will have little occasion to visit a sticky ooze, even though it might be very attractive to other insects. What we meant to say was that bees might carry blight if it were where

they would be likely to come in contact with it. We will admit we are not well informed on the subject of blight; but twig blight and pear blight could be, and are, carried by bees, and in a form that might find lodgment in blossoms.—ED.]

"THE OCCURRENCE of swarms going into other hives that have just swarmed" is mentioned, p. 293, as "not common." With me it was painfully common when a number of swarms issued on the same day with clipped queens. The bees not being allowed to go off with their queen, likely preferred to return to some other hive than their own, and the swarthy noise at other hives attracted them. One day I had a case of that kind. I moved the hive to a new place, and the bees soon found it. Then I put it on a wheelbarrow and trundled it about. As long as I kept on the go it was all right, but whenever I stopped the bees found it again. [The reason it was "painfully common" was doubtless because when it did come, it came in a painfully inconvenient time. We have had for years something like 500 colonies in and near Medina, and the occurrence of swarming bees going into other hives is not common with us. As we do not clip queens, because many of our customers prefer them unclipped, it may be that this explains the difference.—ED.]

ON page 283 there seems a desire to discover some artificial pollen that will work out just the same as natural pollen. May be that would be no real gain. O. O. Poppleton says, p. 281, "My problem is not so much to encourage brood-rearing as to keep it down," and in Germany "late-breeders" are in general preferred to "early-breeders." If we could get a colony a month in advance of others in brood-rearing, it is just possible it might fall below the others in its season's storing. [Perhaps with the Northern beekeeper there would be no real gain by artificial stimulation; but in the case to which we were referring, inciting bees to breed by artificial means in Northern Florida to secure increase would be a decided gain. If an artificial substitute for natural pollen can be found that will cause bees to breed up as readily as on natural pollen it will mean a great deal to many Southern beekeepers who desire increase, but who sometimes find there is no natural pollen, notwithstanding general weather conditions are favorable. There is seldom a scarcity of natural pollen in the North except very early in the spring; but it is often lacking in parts of the South.—ED.]

J. E. Crane

SIFTINGS

Middlebury, Vt.

If Mr. F. A. Conner's jumbo hives are as great a success in producing honey as they are neat in appearance in the picture, page 183, they are a success, sure.

I have examined several yards of bees this spring, and those wintered out of doors appear to be in much the better condition in spite of the severe winter.

After reading Mr. Van Wye's experience in court, page 190, one can not help wondering if the old-fashioned rule of loving your neighbor as yourself is not, after all, the best way.

Wesley Foster says, page 166, that he has "made mistakes and always shall." Just so "me too," but it is more than half the battle to acknowledge our mistakes. Give me your hand, my brother.

On page 163 Dr. Miller quotes from a German bee-journal the statement that honey from some soils contains 75 per cent more iron than that from other soils. This may have a bearing on the color of honey from different soils.

That house apiary of Mr. Newsome's, page 181, is certainly attractive. Such apiaries have some advantages. I run across them now and then in inspection work; but I find they have some disadvantages as well. They are, however, a complete protection against petty theft.

Do we beekeepers realize how fast the larvae of bees grow? If a chicken were to grow as fast it would in a week weigh about 125 lbs.; and if a wee pink human baby were to grow as fast as these baby bees, it would weigh in the course of a week not far from four tons, and be as large as a good-sized elephant. These are, of course, estimates, and, like the weights on freight bills, subject to correction.

I will say in regard to that four-foot board referred to, page 85, by Dr. Miller, that one is enough for a yard. We give just one line across the board to a hive, and use shorthand thus. 27. s.6-20- \times 7-4 O. Let me read it: "No. 27 has a queen two years old; wing clipped; is strong in spring, and on June 20 found eggs in queen-cells. The queen was removed July 4th, and in seven or eight days a virgin queen was

given, which in due time was found to be fertile." Having eight yards to look after, we haven't much time for bookkeeping, and a few signs seem to answer our purpose.

HOW THE MUCH-DESPISED SWEET CLOVER IS
WINNING ITS WAY INTO FAVOR.

F. W. Lessor says, page 230, that sweet clover is a great crop, and he is going to sow nine acres of it this spring. Dr. Miller says, p. 205, that in his county the farmers have bought twenty bushels of the seed. A man in Kentucky writes me that he has sold a carload of sweet-clover seed; and our State Commissioner of Agriculture told me not long ago of a man in Kansas who had plowed up 4000 acres of alfalfa to sow to this despised sweet clover—not that alfalfa was not good, but that sweet clover was better, in that (for pasture) there was no danger of bloat in cattle. Let the good work go on.

QUEENING WITH VIRGINS WITHOUT
DEQUEENING.

On page 126, Feb. 15, I inquired how far young virgin queens could be introduced into hives having a laying queen, and have them become fertile, and take the place of the old queen without the trouble of looking her up. Mr. Adrian Getaz, of Knoxville, Tenn., writes me queens three or four years old will be destroyed invariably. Those two years old, not always. Those of the previous year's rearing will often succeed in destroying the virgins—how often, I don't know—perhaps in one-third of the cases—often enough to make the scheme unprofitable. I wish he would tell us how he introduces his virgin queens.

THE FELLOW WHO DOESN'T READ A BEE-PAPER.

An old gentleman offered me his entire lot of twenty colonies of bees in all sorts of hives, three years ago, for \$60. I called to see him a few days ago. He was not at home, but his family informed me that the bees had increased to thirty-five colonies, and he was fixing them so as to put on sections, and had made 250 sections for use this season. I didn't smile—at least till I got away from the house. It wouldn't have been polite; but I couldn't help thinking that, if he read GLEANINGS or some other good journal, he would have wanted 2500 sections and 20 pounds of light foundation to go with it. How much it has saved him to go without a bee-paper or bee-book both in time and expense!

BEEKEEPING IN THE SOUTHWEST

Louis H. Scholl, New Braunfels, Texas.

A TOO COMMON MISTAKE.

In GLEANINGS, April 15, are shown excellent photographs of various extensive apiaries, both of this country and from across the water. It will be noticed that the hives are in long rows, spaced the same distance apart in each row, and the hives entirely alike in almost every instance. In my own experience I found years ago that this was not the best way to place the hives, and I have called attention to the matter before. The danger of not only bees but queens mistaking the neighboring hives for their own is the main objection against such an arrangement. It caused me much trouble as long as I had the hives spaced in such systematic order on account of the many queens that were lost by going to the wrong hive. And this did not stop until I moved every other hive closer to its next neighbor so that the hives, while still in long rows, were arranged in pairs. Thus placed there is little if any danger of the above-mentioned trouble. I have wondered if other beekeepers who have their hives arranged in such regular order do not have these troubles. My information from a number whom I have asked is that they experienced a large number of missing queens, but they had not given the real cause of this any thought. After mentioning the matter as outlined above there was a general opinion that "there is something in it." What do others say?

* * *

WHAT TO DO WITH DARK HONEY.

The following letter has been forwarded to me for an answer:

Louis H. Scholl's objections to selling off-grade honey have prompted me to write for information. I agree with him in regard to the evil effect of selling the "stuff," as he terms it; but the question is, "What shall we do with it?" In my immediate locality we have honey-dew in almost unlimited quantities in the summer, just after the main honey harvest, and this is often mixed by the bees with more or less good honey. It is never mixed enough to make it any thing like a good grade of honey; but we are often compelled to extract quantities of it in order to make room for the queen to deposit her eggs; and as we don't need it for feeding purposes there is nothing to do with it but either to sell it, give it away, or dump it in the river. There is no market for it that I have ever been able to find. The biscuit companies refuse it, as they say they are not permitted to use it in their goods. If you can suggest some way to use it, or some profitable way of disposing of it, it will be appreciated. Would the name "honey-dew honey" on the labels of this grade of honey conform to the pure-food laws, or would the word "honey" have to be left off entirely?

Jonesboro, Tex., March 27. T. B. CANTRELL.

My claim is that we should not put any inferior grades of honey on the market as a good many beekeepers have done and are still doing from year to year. The result is that it has a material bearing on the price good honey ought to bring, and therefore should be avoided. In our own case we have a good deal of quite dark honey at times, and sometimes we get very light-colored honey. Now, instead of selling the very light honey alone, we use it with darker honey to make a light-amber blend that we have been selling for years. Long ago we found that this is by far the best method of procedure in a locality where honeys of different colors are harvested. We find it difficult to get enough more for our very light honey over a good light-amber grade to warrant us in selling it separately, and then, perhaps, run the risk of not being able to dispose of our darker grades. A good light-amber grade of honey always finds a ready market at a good average price. Besides this we now avoid the occasion for sending a customer some very light honey at one time and then filling his next order with dark honey or *vice versa*. Either may cause reason for complaint.

My advice about the handling of the honey crop in your locality would be to harvest your main crop just before you get any honey-dew mixed with it. The honey-dew honey can then be left on the hives for winter stores here in the South, as we have not found that any evil results follow its use as it might do in the North and East. In my own apiaries I would provide the queen laying room in some other way and leave the honey-dew in the combs for feeding stores in the spring. The result of this extra amount of food material during the heavy breeding season in the spring would mean rousing colonies for the honey-flows later. I am sure that it could be used to great advantage for this purpose. Instead of putting it on the market in the form of "honey," especially if of dark color, I would turn this product into increase of bees and then sell the extra bees. Such an exchange would prove profitable. It would be far better to use it up in this way than to put it on the market at a low price. This always has a tendency to bring the price of better honey down. [Honey containing honey-dew can be sold under the name of "honey-dew honey." This complies with a ruling under the national pure-food law.—ED.]

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.

BEES MOVING HONEY; A HONEY-BOUND BROOD-NEST.

A correspondent writes thus: "I should like to have you take up the subject of bees moving honey in your Conversation department in GLEANINGS. You advocate such in your "Management of Out-apiaries," where you speak of shaking a colony on to its own combs of honey that had been placed above a queen-excluder in an upper hive till the white clover begins to yield honey in sufficient quantities for work in the sections. You say that, when this upper hive is placed on the stand the parent colony has occupied, and the bees shaken from their combs of brood into it, they will carry the honey from these combs into the sections so as to give place to the eggs and brood the queen will fill them with. Now, I have never been able to get one colony to do such a thing. I note that Editor Root speaks of colonies getting honey-bound, and I have had many such cases myself, and that with plenty of room in the sections above. The past summer I placed heavy combs of honey right in the middle of the brood-nest to see what they would do with this honey. They shifted the nest and let the honey alone. If there is room, bees will move the brood-nest. If there is no room, they are "honey-bound."

I have no reason to doubt what our correspondent states. I have passed through just such experiences several times myself. But I found the removal of honey from the brood-combs to the sections in the supers depended on conditions, such as whether the bees wished to swarm, whether the queens were poor, or whether they were anxious for the queen to lay eggs, and feeding her for that very purpose. If the first two, then apparently nothing would cause them to remove honey. If the latter, nothing would hinder them from removing it from the combs in the brood-chamber, except no place to put it.

I well remember one colony which had commenced to work in sections nicely, when all at once they stopped and commenced to store more in the brood-chamber than in the sections. As this was a "pet" colony, and one I had made my "brags" on, I opened the hive to see what the trouble was. I found nine queen-cups started, and eggs in every one of them. I knew that swarming would blast all my hopes, so I determined on vigorous treatment. I cut out all the cell cups I could find, whether having eggs or not; put the frames having the most brood

at the outside next either side of the hive, and those having honey in the center, believing I had things my own way.

Right here allow me to say that I have never had any success in stopping swarming through the cutting of queen-cells after the queen had laid in them and the "broody" fever had taken possession of the colony. After nearly half a century of this work I now consider such only a waste of time.

To return: Two days later I found "nothing doing" in the sections—opened the hive, found some twenty or more cell cups with eggs in, and the honey in the center combs untouched. I became desperate, cut out the cells again, and uncapped every cell of honey the brood-chamber contained, cutting the combs down even with the wood to the frames. Did they carry the honey to the sections? Not at all. It ran out at the entrance; and had it not been a time of a good flow of nectar I should have had a fine case of robbing on at the apiary. To clean up the "muss," they stored every available cell in the brood-combs with honey, started more cell-cups, and swarmed the next day with over forty cups with eggs in them. I now took out all the combs they had in the brood-chamber, filled the same with empty combs, hived the swarm back in their old hive, shook all the bees off their combs with the swarm, put the sections back on, and closed things for two days. I then looked in, found three combs cleaned for eggs, with eggs to the amount of perhaps a thousand in these combs. I next took out the other seven combs, and replaced them with seven combs containing solid sealed honey. Three days later the bees were making the combs in the sections grow like magic, and two weeks later I took off two supers of 44 sections each, and left another super of 44 sections well under way, while an examination of the brood-chamber found every cell filled with brood except those containing from five to seven pounds of honey and those necessary for pollen.

From this it will be readily seen that, when any colony is in a condition that makes them desirous of brood, they will feed the queen for the purpose of having her lay; and when they thus feed her they are sure to prepare the cells for those eggs if there is room in the supers for the storing of removed honey.

Now, if you will read "Management of Out-apiaries" carefully you will see that each colony, as far as possible, is brought

Continued on page 399

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GENERAL CORRESPONDENCE

OPERATIVE COSTS IN BEEKEEPING; A VALUABLE ARTICLE FROM ONE WHO KNOWS

BY R. F. HOLTERMANN

The article of Arthur C. Miller, followed by your editorial on pages 290, 291, interests me. I believe the estimate of 10 per cent loss in the introduction of queens is not far from correct, although with me it generally runs somewhat less. I doubt if the beginner has a much heavier loss in introduction, as the rules for this work are pretty well known, and, if followed out at all, are likely to give just as good results with a beginner as with any one else.

In introducing queens, especially in the fall of the year, I feel sure that a matter that is overlooked is that, *at such time*, there are often two queens in the hive—mother and daughter. We found a large number of colonies in that condition last fall when introducing several hundred young queens.

STUDENTS.

In the footnote attached to the same article you are kind enough to value my time at 50 cts. an hour. The bee season lasts in all about six months, or close to 150 days. That would give me a wage of just about \$750 per year. Would that not be a pretty handsome salary for a man who has been engaged for over thirty years in a business? I am afraid that, in counting the cost of honey production, there are a large number who do not consider that there are many days for a beekeeper when his time is worth little or nothing, and that he must "make hay when the sun shines."

Then as to students, you overstate what I pay them. I consider that it has cost me considerable to learn what I have by experience. Moreover, I have spent a good deal of money in going to conventions and privately visiting beekeepers. I am running something like 800 colonies; and whoever comes with me for a season should get the benefit of pretty long and wide experience. If a person goes to school, college, or university, it costs money, and I do not *need not*—teach a young man his business and *pay him besides*. I have taken two more young men than usual this year, and could easily get as many more, to say nothing about several young ladies.

I want men of clean habits. I do not call tobacco-smoking a clean habit; for, even if smoking is not indulged in at work, or going back and forward to work with others,

one using tobacco always smells of it, which is very unpleasant for those not using it. Then, if I judge from correspondence I have with those who are likely to be suitable, they come understanding they work as they learn, and get their board. That is all that is definitely promised them. Their washing is not promised them, but we have done that for them with the exception of fine shirts and collars. Then if I do well (which I fix as getting 50 lbs. of surplus per colony, spring count), *and they do well*, I promise them \$35.00 at the close of the honey season, and the promise to stay for the season, April 15 to Oct. 1 (about).

I have no trouble in getting all the help I want, and I have generally succeeded in picking desirable and intelligent men. Mr. H. H. Root will not hesitate in saying I made a good selection last year.

What I expect from students is an interest in the work. The terms they come on would indicate that; but there is a great difference in men. Some are thorough in all they do, while others are the opposite. Some have their mind on what they do, and some have their minds on almost any thing except what they do. Others appear to have no mind at all. I have found, in the majority of cases, a well-brought-up farmer's son a good man. A shirker is a nuisance, and, as a rule, between us he manages to get his share of the load before the season is up.

Let me say here there is no trouble in sizing up people. It is only the selfishness of a person that prevents him from seeing that every one can read him as readily as he can an open book.

What I will not tolerate is a two-faced person—one who can do things well when some one is around, and any way but well when no one is around. I expect students to make mistakes sometimes. That is part of their tuition; but I do not expect them to make the same mistake over and over again. I do not expect them to make mistakes very often that a little foresight would have prevented. If they do it counts against them. I have much sympathy for a person not naturally very alert so long as I can see he is doing the best he can, particularly if he is frank.

I have had quite a lot of young men do well under my tuition and management.

Some, but not many, are fit to run 100 colonies after a season's practical experience. Others would be better off to take another season and work for pay with some one else, or to begin with half the number of colonies. Others have such careless ways, such a lack of thoroughness, that they had better not keep bees at all. I do not believe any one should make his first aim in life to earn his bread and butter. He should, rather, live for God; and what God gives him to do he will do well.

Brantford, Can.

[Our correspondent is one of the best beekeepers in North America—yes, one of the best in the world. The fact that he has been making money with his bees, and increasing year after year, shows that he is a business man as well as a beekeeper. Most business men have to pay dearly for their experience, and Mr. Holtermann is entirely right in contending that students that come to him to acquire practical experience should not expect ordinary wages. In former years, in England an apprentice had to spend seven years in learning his trade; and it was only during the last year or two of that period that he received any compensation whatever. If one desires to become a competent beekeeper he should be willing in some cases to work for nothing and board himself. In fact, we have two lady students who are coming to us this season, expecting to follow our experts around for what they can learn. Their labor will just about offset the inconvenience of showing them. The time may come, perhaps, when Mr. Holtermann will find that he can get all the help he needs from students who will be willing to pay for board and lodging, and in addition furnish their labor for what they can learn.

Perhaps we put Mr. Holtermann's hourly wage too low; but we figure it this way: The average expert beekeeper in most localities will consider that he is doing well if he earns 50 cents an hour; and in some cases at least the skill that will enable one to earn that wage during the bee season will

enable him to make an equal compensation at something else during the other part of the year.

Mr. Holtermann says that he considers 50 lbs. average is doing well. He evidently considers this as a minimum figure on which to base his extra compensation, although during the season of 1913 his average would be, of course, beyond that. If we take a period of ten years, good and bad alike, the average might not come up to 50 lbs. Let us take a pencil and tablet and see how the figures run. Mr. Holtermann has 800 colonies, and he thinks his minimum "does well" if it is 50 lbs. average. This would make him 40,000 lbs., which, at 8 cts. per lb., would amount to \$3200. The board and lodging of his students, including washing, would run up to about \$5.00 per week, or \$125 per season for one student. Six students would make this nearly \$800. Depreciation on his equipment, and winter losses, on the basis of 10 per cent, would make another \$800, or \$1600 all told. This would leave him a net profit of \$1600 for his labor, or what would be a little more than \$5.00 for one year of 300 days or twice that for 150 days. His time then ought to be figured at nearly \$11.00 a day on the minimum "do well." If he had only 400 colonies his earning capacity would be considerably reduced, and most beekeepers do not go beyond the 300 mark. But the late W. Z. Hutchinson advocated keeping "more bees." Let's see how this works out.

Four hundred colonies would make his gross income only \$1600; but as his overhead expense would be higher in proportion his net income would be \$800 or a little less than \$5.00 for 150 days, or \$2.50 for 300 days. If his knowledge and experience can enable him to handle twice the number of colonies, and make \$11.00 per day, why shouldn't he keep 800, or, better, 1200 or 1500? That brings in new elements—more bee range which he may not be able to get, and longer distance to travel, and a greater cost of transportation. The "more bees" slogan can't be worked too hard.—ED.]

GOOD COMBS; THEIR IMPORTANCE, AND HOW TO PRODUCE THEM

First Paper

BY ARTHUR C. MILLER

One does not have to serve long as an inspector, nor do much visiting among beekeepers, to become impressed with the vast number of poor combs in use. But one is surprised that so many beekeepers have

not the slightest idea of the great loss in using such combs.

Not only are there many poor combs, but many are so placed in the hives that half of their surface is not available for brood.

Part of this is due to faulty hives and part to careless spacing, though the self-spacing frames have largely overcome the latter. But it is of the quality of the combs that I am more particularly to write.

The standard L. frame of commerce has an area within bars of approximately 132 square inches, which, if filled wth worker cells, would contain approximately 6600 cells on the two surfaces. If we accept as a working hypothesis the figure of 3000 eggs in 24 hours as a queen's capacity, then one such comb will take two days' eggs, and 10 such combs (66,000 cells) will just do her for the 20 days and a fraction necessary for one cycle of brood.

But relatively very few "L" combs contain any such brood-cell area, either worker or drone, and very many contain a wastefully high per cent of drone. To illustrate these points I append photographs showing perfect, good, medium, and poor combs. In speaking of areas in what follows, I shall refer to one surface only. The good comb shown in No. 1 is nearly perfect. Incidentally I will say that I have hundreds as good or better. It not only costs no more to produce such combs, but it actually costs one less to produce them than it does other beekeepers to obtain poorer ones.

Comb No. 2 will be classed by most beekeepers as perfect, as almost the best they can ask for. It is a good comb, but it is not well fastened in, and there are nearly 30 square inches of waste space within the frame. Part of such is in the unfilled space next to the bottom and end bars, and part is in the shortened cells comprising the rounded edges of the comb. Under right conditions the space at the ends will be built in.

Comb No. 3 will pass for good by many. It is straight, firmly attached, fills the frame better than No. 2, but has about 20 square inches of stretched cells and drone comb, besides the short cells at the bottom edge, and the space next to the bottom-bar. All together it has only about 86 square inches of surface available for worker brood. Ten such combs are equal to little more than six like No. 1.

Comb No. 4 will be called poor by almost any one, yet the inspector finds many such, and many even worse, as he goes his rounds. It would take forty combs like that to equal No. 1 for worker-brood production.

Combs No. 1 and 2 are profitable to use; and if it were not easy to have combs like No. 1 then No. 2 would be almost good enough. But you may ask, "Why aren't they, any way?" Well, I never throw such

away, you may be sure, but I am taking pains to get No. 1 type now.

Ten combs like No. 1 and 2, with a good queen and proper conditions, will furnish a beekeeper with a rousing colony. Ten combs like No. 3 and 4 will not. At best they have many per cent less available worker-brood area; and not only that, they contain an excess of drone comb, besides having stretched cells near the top-bar which will be filled with honey which should be in the supers.

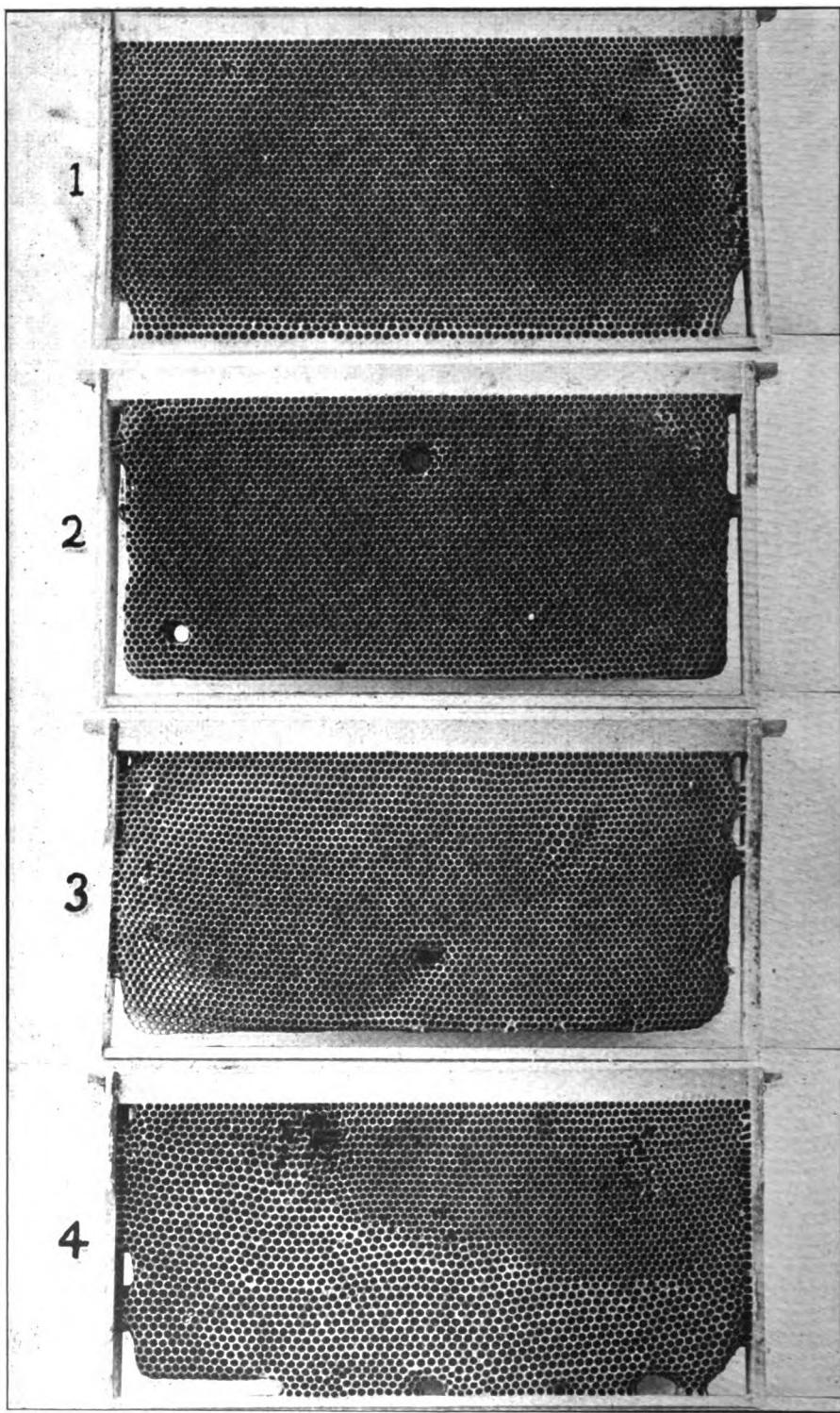
You hear of men advocating twelve-frame hives, two eight-frame or two ten-frame bodies for one brood-chamber. Examine their hives and you will, in most cases, find their combs are many per cent below what they should be. In other words, they are using double equipment in bodies, frames, and comb, or buying wide or deep hives at special prices, merely to get what they should and could have by proper attention to the production of their combs at the start.

Invested capital is too often lost sight of in the efforts to get results by manipulation of one kind or another. Do you hear the man who is talking two bodies for a brood-chamber mention that one body with combs represents a flat cost (without labor) of about \$1.60, and that to get his desired results he proposes to invest \$3.20 for each colony? He does not figure it that way. Those figures are based on his using full sheets of foundation in the ordinary way; and if his combs are of the average from full sheets, his two chambers will give more room than is needed.

If he chances to have tried to economize by using starters or half-sheets his double story may give him plenty of workers, but it will also give him a horde of costly drones.

I know one extensive beekeeper who, to economize, makes his own foundation, saying he cannot afford to sell his wax for 30 cents and buy foundation at 60 cents. He makes six L. sheets of foundation from a pound of wax, and then economizes (?) still further by using but half a sheet in a frame. His combs are only about 60 per cent efficient on a worker-producing basis. His foundation costs him five cents a sheet for wax; labor, he says, is nothing, for otherwise he would be idle in the winter. I buy foundation from the manufacturer at five cents a sheet, and have no labor in making, and get a better product than the man referred to. Who is the better off?

I use full sheets in nine of each ten frames, and a half-depth sheet in the tenth. I get the combs shown in No. 1 in nine frames, while the tenth is half drone. Why



1, perfect; 2, good; 3, medium; 4, poor combs.

do I do that? Because the bees insist on having some drone comb, and I prefer to have it all in one place, and have that place where it serves me best, which is at the back of the hive. My hives are all with the combs side to the entrance instead of end to the entrance. Why? Because I can work more easily with such arrangement; because I can remove most of the combs without disturbing entrance conditions—usually a small matter, but not always; because I can keep a small colony across the whole entrance where it can better defend itself, for I seldom fuss with reduced entrances except in extreme cases, and because my special drone comb is at the back, where it is not used until every thing else is full. The bees' convenience, or theory of warmth or cold, enters not at all into the arrangement. I use it because it suits me and serves my ends best.

The top-bar of that frame with the half-comb of drone is painted white—a practice I followed and advocated many years ago. So designated, it does not get put into other parts of the brood-chamber unless I purposely put it there for getting drones early or out of season, or from a special queen. But the instant the tops of the frames are visible, the location of such a comb is known.

I think I may properly call my ten combs so handled the perfection of comb efficiency and economy. My results (operations and colony conditions) are all that any beekeeper could desire, and I know that I do less handling and overhauling than most beekeepers.

There is one other item in my use of combs which has much to do with the results I obtain. My hives have half an inch more

width inside than the standard, and the combs are offset from front and back walls rather more than two full bee-spaces. Why? See the solid sheets of brood in the outside surfaces of the outside combs and you will understand why. Does it pay? Go and examine the two outer combs in a standard ten-frame hive and you will see. The outer surfaces rarely have any brood, and the inner surfaces are not usually well filled. I cannot afford to lose the brood-containing use of one comb out of every ten; so, after I have obtained ten combs of the highest possible efficiency, I so place them as to have every inch available.

I think that the available worker-cell area in the run of ten-frame hives as the inspectors find them is equivalent to but six or seven combs of the No. 1 and No. 2 type.

If beekeepers would study their combs more closely they might discover the reason for some of the great differences reported from use of hives of different sizes, proportions, and protection. Poor combs are a serious loss to beekeepers in more ways than one, and it is the more grievous in that it is easily preventable.

I have said that it costs me less to produce my combs than it does the average beekeeper to produce less perfect ones, and in some future papers I will tell you how I do it. I use old and well-known methods, correcting a few errors, adding one or two things which I have found superior, all of which will be described and pictured, so that you can do the same if you will take the same pains.

In the meantime, ponder on the quality of combs, and the profit and losses arising from the use of the different kinds.

Providence, R. I.

IS THE SUPPLY OF HONEY LIKELY TO EXCEED THE DEMAND?

An Open Letter to Dr. Miller

BY RAY MITOWER

Dr. C. C. Miller:—I am writing to ask you for a little advice. I am a man in my twenty-first year, and it is time I made up my mind what my occupation will be. I am a farmer's boy, and I have kept a few bees for the last eight or nine years. I take great interest in them, and have been successful, as this is a good location. I have always thought that I would make beekeeping my business. This part of the country is favorable for the production of comb honey. Here is where I should like to have your opinion. Is the supply of honey likely

to become greater than the demand? Will honey be so plentiful that it will be a drug on the market, and the prices be so low that beekeeping would not be a paying proposition? You will find a little article on this subject in the Feb. 1st issue of GLEANINGS, page 89, by Wesley Foster.

West Lodi, Ohio, March 2.

[Dr. Miller replies as follows:]

All that Wesley Foster says is, unfortunately, only too true, and he is doing good service in trying to get beekeepers to face the situation. Your question is an impor-

tant one, "Is the supply of honey likely to become greater than the demand?" A search for the answer involves two other questions.

1. Is the supply of honey likely to become greater than the amount that can and ought to be consumed for the best interests of the public in general? The annual consumption of sugar in the United States is something more than 80 pounds for every man, woman, and child. I think the general consensus of opinion among the medical profession is that this is detrimental to the general health. There is probably little doubt that it would be greatly for the public good if three-fourths of this amount should be replaced by honey. Let us, however, be modest in our demands, and say that one-fourth of that amount should be replaced by honey. Let us be even more modest than that, and say that enough should be added to the amount of honey now used to total one-fourth of the number of pounds of sugar now used. That would make 20 pounds per capita. To supply such a demand would require a vastly increased production, such as is very unlikely to be reached in your lifetime. So we are pretty safe in replying to our first question that there is little danger that more honey will be produced than can be consumed, and that *ought* to be consumed for the best good of the nation.

We now come to our second question: Is it likely that the people will—not *can*, but *will*—be so awakened to their own interests as to demand and consume the amount of honey that they should consume for their best good? Replying to this question, I must frankly say I don't know. It lies in the hands of two parties. It lies in the hands of those public officials who are look-

ing out for the public health, as the first party. The tendency is now in the direction of increased care for the health of the people; and if that tendency continues we may yet find government doing as much for the health of folks as it has been doing for the health of hogs. When that time comes, one of the things it may do is to urge the consumption of less sugar and more honey.

The other party to whom we must look to make known the virtues of honey is the brotherhood of beekeepers themselves. If they were all as wideawake to the necessities of the case as Wesley Foster, the case would be hopeful. Alas that they are not! Whether they ever will be to the extent of taking concerted action is one of the things in the realms of the unknown.

There remains, however, the possibility of individual action. There are individual beekeepers who have done much to educate the public in their immediate vicinity, and this offers an inviting field to any young man who contemplates adopting beekeeping as a permanent calling.

Suppose you are located in or near a city of 2000, or in a rural community of that size, and that you have the field to yourself. It ought not to be an impossibility for you, by a continuous persistent effort, to educate your clientele so that they would consume the 20 pounds per capita already mentioned. That would call for 2000 times 20 pounds, or 40,000 pounds of honey. That looks as if there would be no trouble about the demand, but that you might have trouble about securing the supply.

I am not a prophet; but if I might be allowed to make a guess, I should say that the prospect for the right man is just as good now as it ever was, if not better.

Marengo, Ill.

EXPERIENCES OF A VETERAN BEEKEEPER

A Monstrous African Bee-tree; the Remarkable Career of a Beekeeper, Missionary, and Explorer in Africa

BY REV. J. M. LEWIS

I have read with unusual interest the writings of A. I. Root, especially those on health and how to live long, and his frequent references to Terry. In looking at their pictures, which have at various times appeared in GLEANINGS, and having noted their gray hair and other marks of advanced age, I have wondered if, with their careful diet and rigid mode of living, they were more robust and energetic than the average, or had retained their youthful appearance above the average man of seventy.

I am sending you a photograph taken on my 70th birthday. I think I can claim the honor of being a veteran beekeeper, having been born among the bees and keeping them at various times all my life. At the present time I have twelve colonies, and am doing nearly all the work on a small farm where I have three cows, a horse, and a hundred fowls. I have scarcely a gray hair; my teeth are exceptionally good, so that I crack nuts and bite off a twine string with the greatest ease. I have lived a very active life, and



A beekeeper who, in spite of an eventful and active life, is 70 years young.

much of the time a laborious and trying one. For several years I was employed in the manufacture of furniture and children's carriages, often making long trips, going over a large part of the South and West, buying stock and soliciting trade.

During those years I was interested in Sunday-school and evangelistic work.

In 1887 I was called to go to Africa, and in March of that year I started for the "Dark Continent," and entered the mouth of the Congo River two weeks behind Henry M. Stanley when in search of Emin Pasha. I traveled a thousand miles into the interior and went where a white man had never been, going several months without seeing the face of a white man. I encountered many dangers, and some narrow escapes from death, and endured hardships trying in the extreme.

After five years of missionary work in

the hottest part of the world I returned to my native land with health impaired, but with courage and a good constitution, and took up pastoral work. My longest pastorate was seven years, and the shortest two years, with one of three and one of four years. I concluded that, by long service, I was entitled to a less strenuous life.

THE LARGEST BEE-TREE IN THE WORLD.

I retired to the farm where I could keep bees, which have been one of my hobbies, and one I can ride with a great deal of "sweetness" and very few stings. I not only have the honor of being a veteran bee-keeper, but of discovering the largest bee-tree in the world, a photograph of which I send you (see Fig. 1), with some others taken while in Africa. I also claim the honor of making the first and finest collection of photographs of that country ever brought to America.

The tree is the baobab (*Adansonia digitata*). It measured sixty-five feet in circumference. The bees entered the body of the tree near the first branches. Some of your readers may ask if I cut the tree down to get the honey. Not much. Too hot. Fig. 2 is the trunk of the same tree with four boys standing several feet apart to show its enormous size.

No. 3 shows the blossoms of the tree, any one of which would nearly fill a peck basket. The fragrance is delightful, and can be detected a long distance.

Fig. 4 is the oil palm showing how the natives climb the trees. They gather the fruit, which they use for food, and also the sap, which they drink. This is procured by



Fig. 1.—The largest bee-tree in the world—65 feet in circumference.

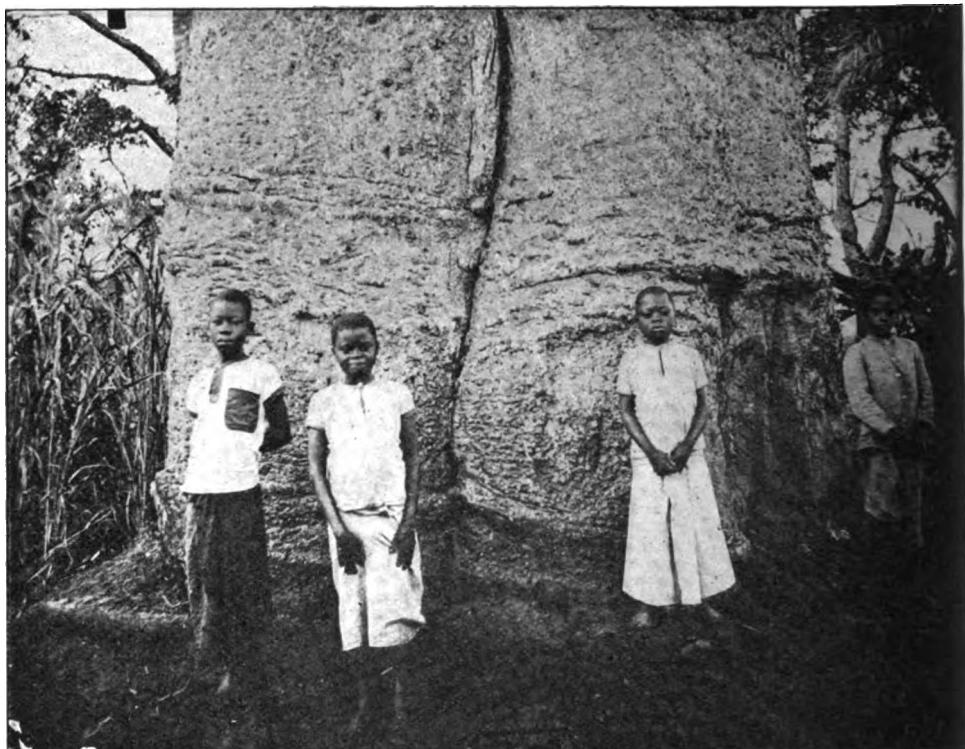


Fig. 2.—A closer view of the largest bee-tree in the world. The native children in the foreground give an idea of its size.

cutting a gash at the base of the leaves. The blossoms of the tree attract the bees, which procure honey from them.

Fig. 5 is an African jungle where the hum of the bee and other insects is heard by the thousands, and where also is the home of the elephant and leopard besides many reptiles.

Fig. 6 is one of my latest productions by way of a fancy hive. It is made in three sections, and is double-walled. The inside is a regular ten-frame Danzenbaker with two supers. The foundation on which the hive stands is of stone laid in cement. The stones were gathered from Maine to California, some from all the New England States, and some from foreign lands. One of them a friend brought from the shores of Galilee, where Christ spent so much time with his followers.

In closing this rambling article I want to say that I believe it is not so much *what* we eat that gives us a long and vigorous life as *how* we live. I have eaten nearly every kind of food that ever found its way into a human stomach, and food cooked by nearly every race of people. I have lived among cannibals; but while among them I ate no meat—for my own *special* reason. I have

sailed on English, French, Spanish, Portuguese, and Dutch steamers, and ate what was set before me, and asked no questions. I have a good constitution, inherited from the old New England stock, many living fourscore years and more. As a child I was considered frail, but have wept at the graves of many of my associates and friends whose prospects for a long life were far better than mine. I have always been strictly temperate, using no intoxicants nor tobacco in any form. Unlike Bro. Root and Terry I do not care to live to the century mark. In tracing my ancestry back for more than four hundred years I find some of them nearly reached that age. The oldest record-ed was over 97.

I am not so much interested in what the next thirty years will accomplish by way of great achievements as I am in the great unknown and the Father's house where are many mansions, and the location of that city which is to be my future habitation. I would rather leave this world with an active brain and a mind unimpaired by the feebleness of old age than to reach the century mark with mind gone and body weak and tottering, and a burden to those around me.

North Westport, Mass.

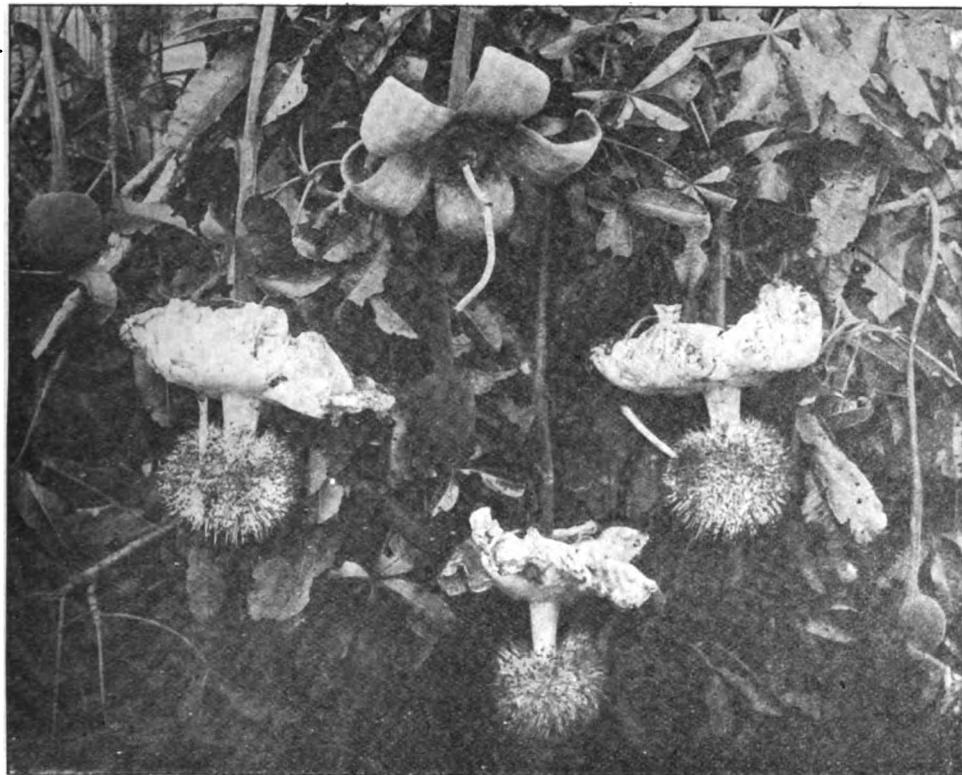


Fig. 8.—Flowers from the biggest bee-tree, any one of which will nearly fill a peck basket.

THE GOLD IN THE BEE COLONY; ONE FOR ALL, ALL FOR ONE

BY DR. BRUENNICH

The deeper we penetrate into the mysterious life of the bees, the more we find feelings and passions kindred to our own—love and hatred, delight and devotion, jealousy and wrath—yes, even kindness and avarice, and also fright, terror, and bravery. If we investigate more closely the character of the little creatures we shall conceive of the colony with its thousands of individuals as a harmonious unit. We begin to understand therein the totality of the workers, the queen, the drones (for as long a time as they exist), and the wax edifice with its dormant brood containing its treasures of pollen, and its fluid gold—the honey. Such a colony may reach an old age, perhaps thirty years; but its workers and drones are renewed every year, and the mother queen is replaced every three or four years by a daughter. From time to time a new colony is brought into existence by the act of swarming, when the old mother moves out, as a rule, leaving behind her a number of

queen-cells in which are sleeping the future young queens.

From another point of view one may be justified in introducing a new entity—that is, the bee-state from one spring to the other, especially since all individuals except the queen are renewed and replaced by new ones from year to year.

In February, when the sun begins to draw larger circles, the quiescent bee slowly awakes to new life, and softly stirs around in the contracted cluster, in the warm center of which (the temperature curiously enough corresponding to our own blood temperature) the queen is nursed and cherished. The queen soon begins laying eggs in the cells, increasing the number of them from day to day with the growing warmth. At first the brood circles are small in diameter; but soon they increase to considerable dimensions. Three weeks after the commencement of egg-laying, the first young bees begin emerging from the cells, and, corres-



Fig. 4.—The oil palm that furnishes food and drink, also honey.

ponding to the swelling brood surfaces, they augment the number of little citizens. They are kindly accepted by their elder sisters, who clean them and give them food. This, then, is the youth of our bee-state—the time of immolating love. All effort is aimed toward warming and nourishing the little helpless babies. And those tiny larvae, so recently from the eggs, really need a great deal of maternal care. However, their growth is extraordinary; and after nine days they build their own cocoons for sleeping during their metamorphosis, which requires twelve days. At intervals of a few hours the young nurse bees give these larvae exquisite food which they secrete from their milk-glands situated around the cerebrum. Only by a strict admirable arrangement is made possible the enormous growth, from about 15,000 inhabitants to 70,000 and sometimes 90,000. For the preparation of

dead, begin to diminish rapidly, and the bees do not like to live from hand to mouth.

In our country, toward the end of April the love of the worker bees has a new attractive object—that is, the care of the male habitants of the hive—the drones—which are nursed with peculiar attention. As the first drone youths are hatching in their manly vigor and beauty, it is a joy for the young sisters to cherish and nourish the chivalrous knights; for at this time it is beneath the drone to seek food in the comb. Booted and spurred they stride proudly across the rows of their devoted sisters; and when they fly in search of a bride one can easily distinguish their loud bombarding tones.

This is the flowering time—the prime of life of the bees—and at such a time it is a pleasure to deal with them, for they know nothing of vigilance, hatred, jealousy, or

the milk (jelly) a great deal of albumen-furnishing pollen is needed, besides water and some honey.

The oldest bees undertake the dangerous task of gathering the water. This water can not be stored directly, but indirectly; a great deal of the water is deposited in the honey near the brood-nest, and last, but not least, in the very blood of the bee. If, after a long period of rainy or snowy cold weather, all the store of water is consumed, thousands of valiant workers fly out if the weather permits, and many remain on the battlefield of work, and never return to the well-loved home. Some become chilled, and others are thrown by the rough wind into the water which they are trying so vainly to take.

Other bees bring pollen from the willows, alders, and other plants, for the treasures of pollen in the combs stored by the sisters, long since

revenge. The greed for gold is still slumbering.

The more of the liquid gold that the bees store, the more does love recede—exactly as with men. The covetous ones begin to listen to suggestions of Malthusian ideas. The brood is restrained more and more, and the number of births diminishes fearfully; and when only a little of the gold is coming in a great change takes place. The drones, once the charm of the sisters' hearts, have grown old, and the bees recognize that they are practically parasites at present, and it is no longer worth while to feed them. Almost in a night the bees have become niggardly and selfish, and their sole object in life seems to be to hold together their riches. Cruelly the little amazons push out the defenseless ones through the entrance, or they place them in the background of the hive, thus inducing starvation. Soon thousands of drone corpses cover the ground before the hive.

At such a time it is not pleasant to deal with the resentful bees. They watch the entrance suspiciously, and woe to the strange bee which they surprise on the alighting-board. Two or three rush upon it, dragging it by the wings and legs, and try to kill it. A bee which has stung another bee seldom loses its weapon, as the barbs are not caught in the smooth edges of the wound made in the stiff chitinous harness.

In this country, in July the honey-flow may again reappear with a consequent revival of enthusiasm on the part of the colony getting old. For a short time the bees nurse the brood with more love than before; but all the brightness of youth has disappeared, and there remains only the suspicion and the greed for more gold. In the last days of summer the bees prepare themselves for another winter's sleep by pitching all the cracks of their home with propolis. They have filled their storerooms



Fig. 5.—An African jungle, the home of bees, elephants, and reptiles.

with gold, and occasionally a bee is seen flying out to get more pollen from a retarded flower. Finally the bees again go to sleep, sometimes for months, and the life in the hive pulses but faintly. Quietly the bees cluster around their queen, taking as little of their stored treasure as possible, and distributing it to their sisters. The food is thus transformed into the necessary warmth to preserve the inhabitants from chilling. The honey is more valuable to the bees than gold is to mankind, for the honey not only heats the bee-home by its slow combustion in winter and spring, but it gives vigor to the muscles, and enables those active little pets to do their stupendous work in and out of the hive. The honey is an important component of the food of the young generation, and the very wax palace in which the bees live is nothing but transformed honey—transformed in the body of the bee by certain glands. It is, therefore, no wonder that the bees set a high value upon their treasures of gold, and watch them suspiciously. There are a few poor creatures that, for one reason or another,



FIG. 6.—Mr. Lewis' ornamental hive. The foundation stones came from all over the world.

have almost no stores. Perhaps their mother queen was old, and unable to perform her duties as she should have done, and the bees failed to replace her at the right time. Or on the other hand, perhaps the colony was a strong breeder, and all available cells were filled with brood, so that most of the surplus honey was consumed for the purpose of feeding this brood. Or, again, perhaps the bees were short-lived or not diligent, etc.

Then there are great capitalists among the bees whose storerooms are filled with plenty of honey. Each cell is carefully closed with a cover of wax, and only a small number remain open for daily use. These bees go with only the greatest reluctance to open their trunks of gold—like the miser who turns the dollar in his hand, taking sorrowful leave of it when it goes. But pitiless man demands of these devoted workers a part of their treasure, for well he knows, too, the noble virtues of the fluid gold of the hive.

How much the love of gold, especially in late summer, domineers the character of the bees, and even misguides them, is shown by

the following: If we disturb a hive by opening it or by knocking on the side of it, the bees whose honey-sacs are empty hasten to the open cells for filling these honey-sacs, for these latter are the purses of the bees. The bees do not know what the trouble is; but in any event a full purse is a good thing, for if by some unfortunate chance a bee loses its home, and is obliged to go begging a place in another hive, it succeeds by the help of its full purse. The first guard it meets asks its tribute of a minute drop, and this satisfies the rough officer.

The bees, when preparing themselves for swarming, never fail to fill their pockets with the gold of the hives. If one drops a little honey on the alighting-board the vigilant insects gather around, greedily taking it up, and they forget to hear or to see. In this condition they do not resent an intrusion in front of the hive, as they might under normal circumstances.

Under these conditions the curse of the gold appears in an ugly form in what are called robber bees. As a rule these are old bees from a neighboring hive, which had discovered that gold obtained by stealing is more convenient and more quickly secured than by honest work in the field. Well aware of their shameful trade they fly cautiously and cunningly around the entrance of the hive they intend to rob. Watching carefully while they keep coming nearer, they fly back in an instant if a guard in a menacing manner demands the password. Immediately it comes back again, searching for an unguarded place. If it ventures to enter it may be grasped by one of the guards; but as soon as it escapes it begins anew its shameless game. After some more fruitless attempts the robber may try another hive in the same manner. If the guards here do not watch carefully it succeeds in gaining a sly entrance, and then proceeds to the first open cell and fills its honey-sac to overflowing. More than half its own weight such a robber may take away. In this connection it has been interesting to me to observe that, the shorter the distance the robber has to fly to its own hive, the more honey it will carry. If it comes from a distant hive it may take only half a load. The escape from the hive is generally easy because the guards pay more attention to bees that are entering than they do to those that are going away. Therefore, as quickly as the heavy burden allows, the robber goes to its own hive, where it discharges its stolen load.

If one bee succeeds in its attempt at robbing, others of the same hive are excited to the point of taking a similar risk, and at

once go to the hive which is not guarded as carefully as it should be. More and more of the insolent bees come around the entrance. The longer they keep at it the bolder they become, and soon it is impossible for the guards to make any resistance. Here and there, it is true, we may observe an isolated duel on the alighting-board, but soon complete demoralization ensues among both robber and robbed bees. The first spare nothing. In their fury they demolish even the wax cells, and tear the brood out of the cells, and sometimes kill the queen. The robbed bees have lost their senses, and in a kind of stupor they fill themselves with honey and look on, perfectly helpless, in the wild jumble.

Almost more perfidious are the *highwaymen* which may be seen occasionally when the honey-flow is poor. The honey-loaded workers come wearily homeward, many being obliged to rest on the wall of the hive or on the alighting-board, for their last force is spent because of the long distance they have had to fly. At such a time one of these watchful brigands throws itself on the worn-out bee, settling itself on the back

or the side of the tired bee, for, to come honestly in front, the rascal does not venture. There it helps itself sumptuously to the gold; and the poor exhausted gatherer, knowing nothing better to do, gives of its honey. Like diligent worker bees flying from flower to flower, these highwaymen rush from one to another of these resting bees, sometimes four or five assaulting a single worker. This profession seems to be profitable, for these robbers quickly obtain purses well filled with gold.

The bee-state is certainly an ideal community. The maxim, "One for all, all for one," is carried through to the end. Each member acts for the welfare of the whole, whatever that may be, without reflecting on its own individual sacrifice, especially if it sees the colony in danger. At first sight one might say that the bees are without vices, but we have shown that there is a big vice, *the greed for gold*, which is able to corrupt the good—yes, even lead them to crime—exactly as the same vice does in the case of mankind.

Zug, Switzerland.

A NOTE FROM OKLAHOMA

BY N. FRED GARDINER

The photograph submitted with this article is that of the honey and wax exhibit of B. F. Bartholomew and family at the 1913 State Fair. This is one of the five individual exhibits made at this fair, the premiums being closely divided between this one and Garee & Garee. W. H. Hobson and J. H. Burrage had creditable displays.

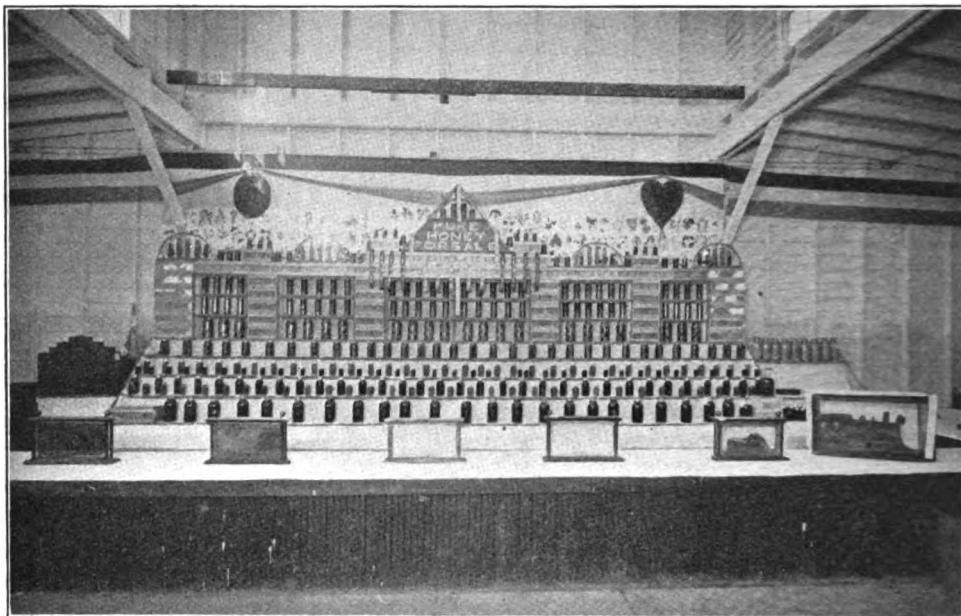
As the product of this display of Mr. Bartholomew was all "home grown," and only a continuation of what he has done for years, it indicates what may be done repeatedly in good locations in Oklahoma by one who knows how. Mr. Bartholomew has such a location, and can be depended on to be on hand with an attractive display of honey each season. His wife puts on the finish with the decorations in wax.

On the extreme right of the photo can be seen the model in beeswax of a locomotive protected by a glass case. This was the clever work of Master Earl Bartholomew. Plans have been started to provide a special department for the boys and girls for another season. We have in this State, under the Agricultural and Mechanical College, what is known as the "Extension Department." In this department the boys and

girls are organized for club work, and some wonderful results have already been obtained by the boys in growing corn, cotton, kaffir, and other crops, and by the girls in canning and preserving fruits and vegetables.

Upon the suggestion of Prof. C. E. Sanborn, the entomologist and beekeeper at the college, the idea of including beekeeping in the work of this Extension Department is being developed. It is hoped that, by the time of the next fair, a special department will be provided in the apiary building for the boys and girls to display the results of their work and study with bees. Suitable prizes will be offered, and the young folks should begin to plan early to enter the contest. Announcements will be made later as the plans are perfected, through the college press, *GLEANINGS*, and the farm papers of the State.

On one evening during the fair a meeting of beekeepers is always held. The fair managers have always been liberal in providing seats and lights, and the meeting is held in the building where these exhibits are displayed, which helps to provide inspiration. If in the future we can have a



Bartholomew's honey exhibit at the 1913 Oklahoma State Fair.

good attendance of these boys and girls it will be doubly interesting.

The annual meeting is held each January at the A. and M. College, Stillwater, Okla., during the "Farmers' Short Course."

The authorities of this college are recognizing the importance of beekeeping, and are lending much encouragement to its extension. Those interested in beekeeping in Oklahoma should make it a point to attend one of these meetings of the Oklahoma Beekeepers' Association, and both of them if possible. They owe this much to those who

are keeping up the work of the Association and to the new methods they may learn.

Geary, Okla.

[Prof. Sanborn and Mr. Gardiner, as we happen to know, are live wires. They are doing much to advance the cause of beekeeping in Oklahoma, not only to make better beekeepers, but to eliminate bee disease. The beekeepers of the State should make an effort to attend the State beekeepers' convention, especially if they wish to keep disease out of the State.—ED.]

REPORT OF THE PENNSYLVANIA STATE CONVENTION

BY H. C. KLINGER, SEC.

The Pennsylvania State Beekeepers held their tenth annual meeting in the State Capitol, Harrisburg, Feb. 20, 21. It was a very lively meeting, and, from the point of enthusiasm, perhaps the best ever held.

Dr. H. A. Surface, State Zoologist, who is the President, was in charge of the meeting. The address of welcome was given by Hon. N. B. Critchfield, Secretary of Agriculture of Pennsylvania.

The subject of comb and extracted honey in the same apiary was discussed by H. P. Faucett. He runs his yard for both kinds of honey, and says that colonies that sometimes can not be coaxed into section supers will work in extracting-frames.

F. G. Fox spoke on 500 per cent increase and a crop of honey. He demonstrated how it is possible, with natural swarming, to take the parent colony after the swarm has issued, and divide it into nuclei and build these up into full colonies.

The foul-brood inspectors, Geo. H. Rea and J. O. Buseman, made their reports on inspection. These were quite interesting in facts, and exceedingly amusing in the experiences the inspectors had with the different kinds of people they met in their rounds. Inspection is doing a great work for beekeeping interests, simply by the contact of the inspector and the education that is spread over the State in this way. Bees are

yet kept in all sorts of ways—logs, bee-gums, straw skeps, soap-boxes, and some have even been found in beer-kegs.

The Coons hive and comb honey was a demonstration made by R. L. and A. N. Coons, of Coudersport. This is a shallow-chamber hive of their own make with which they have been very successful. This year's crop was 28,000 pounds of section honey from 400 colonies. These beekeepers (father and son) are the largest producers in the State.

Dr. E. F. Phillips, of the University of Philadelphia, who was on his way back from the National convention at St. Louis, and who was the delegate of Pennsylvania to the convention, gave an address on two essentials in honey production. He laid emphasis on having the bees go into winter quarters strong and with plenty of stores so as to have plenty of bees early enough to get the honey-flow when it comes. A large number of us have plenty of bees when the main flow is over and when the bees are not needed.

F. J. Stritmatter spoke on house apiaries. This subject aroused considerable interest, as it is quite novel to Pennsylvania people. One of his buildings is three-story, 20 x 30 ft. This contains 86 colonies in hives built solid to the floor of the room. His experience tells him that he has solved, to a great extent, the wintering and the swarming problems by means of the house apiary.

"Soil Fertility and Honey Production" was the subject of the president's annual address. Dr. Surface told the beekeepers to increase the fertility of their soil by sowing the legumes—clover, alfalfa, vetches, etc., and by so doing reap another crop, that of the sweet nectar which these secrete.

Dr. H. A. Surface, Harrisburg, was re-elected President; H. C. Klinger, Liverpool, Secretary; Hon. E. A. Weimer, Lebanon, First Vice-president; Mrs. Dr. L. M. Weaver, Philadelphia, Second Vice-president; R. L. Coons, Coudersport, Third Vice-president.

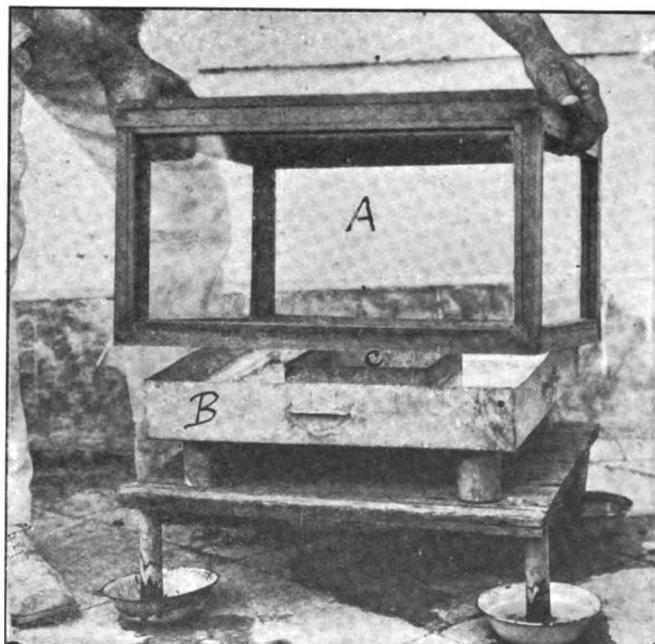
Liverpool, Pa.

ENEMIES OF BEES IN CYPRUS; A CLEVER SCHEME FOR CATCHING THEM

BY M. Y. DERVISHIAN

The principal enemy of the honey-bee in this island is a large red and yellow banded hornet. These hornets increase in August, September, and October. They weaken strong colonies of bees to a great extent and extinguish weak stocks by capturing a large number of bees from the entrances. They hover about the entrances; and if they do not find guardian bees there they go into the hives and destroy the bees and carry the honey to their nests. To prevent this, about a thousand or two thousand bees guard the entrances and often assault and kill the hornets. The damage done to the bees, grapes, figs, and other sweet fruits is considerable. Their nests are found in the ground in the fields and in the cracks and hollows of

walls. These hornets prosper in this country because it does not rain from April to Sep-



A device for catching hornets that kill bees.

tember, and in some years it rains very little, perhaps once or twice scantily. When rain commences in October the hornets disappear, as rain destroys them. They do not keep stores in their nests, and in rainy weather they cannot fly.

For ten years I have been using the trap shown in the illustration. The top "A" is glass in a wooden frame. The lower part "B" is made entirely of galvanized sheet iron. We fill this with soapsuds about $\frac{3}{4}$ inch. The frame of the top fits over the lower part. Underneath the square opening marked "C" a piece of liver, meat, or any thing similar is used as a bait over a board resting on four legs. Under the legs of this board are put small vessels containing about $\frac{1}{2}$ inch of water. This water prevents ants from going to the baits. This device is important, because if ants go to the food

the hornets will not venture near it. Each trap catches about one thousand hornets a day. Honey makes the best bait. A sheet of queen-excluder or wire netting of about $\frac{1}{4}$ -inch mesh should take the place of the top glass in order to let the bees out.

When a number of hornets are caught in the trap, honey-bees will not visit it. This trap has done excellent work. In three or four days all hornets were trapped and live bees saved. They enter from the bottom and rise up into the trap and fall into the soapsuds. This affects their eyes so that they can not rise up again, and in an hour's time they are drowned. Vinegar will do as well as soapsuds. Many beekeepers have copied my glass trap as a substitute for their bottle trap.

Nicosia, Island of Cyprus.

MOTT'S OFFICE AND QUEEN-BREEDING YARD

BY E. E. MOTT

Fig. 1 shows a partial view of the home apiary of 275 colonies. The honey-extracting room is the first building at the right. The second building at the right is the office, and the third at the right is the storekeeper's dwelling. One long building at the left

is the warehouse and cellar that safely winters 300 colonies of bees.

Fig. 2 shows the office at north end. The bay window gives a sight of east, west, and north, while at the desk.

Glenwood, Mich.



Fig. 1.—Mott's home apiary of 275 colonies and mating-yard; extracting-house and office in the right background. The mating-hives are shown scattered between the large hives.



Fig. 2.—Mott's office at north end of the apiary, affording through the bay window a view of the whole yard.

NATIONAL AND STATE LAWS REGARDING NET WEIGHT ON HONEY

BY C. A. KINSEY

In a conversation with the Deputy Sealer of Weights and Measures to-day I find that he is of the opinion that the law applies to honey in sections as well as other articles of merchandise. This law will certainly give the old-fashioned $4\frac{1}{4} \times 4\frac{1}{4}$ sections the best of it over the 4×5 plain sections. So far as has been my experience, the $4\frac{1}{4} \times 4\frac{1}{4}$ sections always weigh more than the 4×5 plain, commonly used in the Danzenbaker supers. The 4×5 sections will seldom weigh full 16 oz., while the $4\frac{1}{4} \times 4\frac{1}{4}$ usually will weigh full 16 oz., and generally more.

C. A. KINSEY.

Belgrade, Mont., Feb. 11.

[The above was referred to the proper authority at Washington, whose reply follows.—ED.]

The A. I. Root Co.:—Your letter of February 20, addressed to Dr. E. F. Phillips, Philadelphia, has been referred to this committee for reply.

For your information I enclose Circular 21, which contains the text of the Food and Drugs Act as amended. The weight and volume amendment of March 8, 1913, will be found on page 20, section 8, "in the case of food," paragraph third, together with footnote.

The regulations contemplated for the enforcement of this amendment have not as yet been approved,

and when they are issued you will be sent a copy.

It would appear from the Act that all packages of food products, whether in bottles, jars, or other wrapped or closed containers, will be considered foods in package form, and required to be marked with a statement of the quantity of the contents. The law requires that this statement shall be plain and conspicuous, and also provides that tolerances and exemptions for small packages shall be established by regulation. These will undoubtedly allow for such necessary variation as occurs in weighing or measure under careful commercial conditions.

A. S. MITCHELL, Sec. to Com.

Washington, D. C., March 3.

[The weight and volume amendment, paragraph 3, with footnote, is as follows:]

Third. If in package form, the quantity of the contents be not plainly and conspicuously marked on the outside of the package in terms of weight, measure, or numerical count: *Provided, however, That reasonable variations shall be permitted, and tolerances and also exemptions as to small packages shall be established by rules and regulations made in accordance with the provisions of section three of this Act.*

The Act of March 8, 1913, provides that no penalty of fine, imprisonment, or confiscation shall be enforced for any violation of its provisions as to domestic products prepared or foreign products imported prior to eighteen months after its passage.

[In addition to what Secretary Mitchell, of the Committee, says, we may add that

sections of honey are undoubtedly included under this net-weight and volume law. When a shipping-case of sections is sold the net weight of the sections of honey in the crate should show. When the sections are sold individually by carton, a close *approximate* weight of the section must show. In the proviso, paragraph 3 as quoted above, "reasonable variations" are permitted; but care must be exercised not to take too wide a "variation" or there will be trouble. We are allowed a variation, as we understand it, of one ounce on the weight of a section—that is to say, there must not be more than one ounce *below* the marked weight, although it may be any thing above. In packing our carton honey it is our practice to run from one to two ounces *above*, as honey that has been stored in a dry room for two or three months at a temperature of 70 or 80 degrees to prevent granulation will lose slightly in weight. Another thing, it is well to understand that there are State laws as well as the national. Some of the former, with reference to net weight, have been in effect for some time back; and if one does not know where his honey is to go he should

be on the safe side, and that means, do not depend too much on the national law that allows of a "reasonable variation" in the weight of an individual section.

Our correspondent is mistaken in thinking that the $4\frac{1}{4} \times 4\frac{1}{4}$ section has the advantage over the 4×5 because it weighs more. If the law provided that all sections should weigh a pound, then the $4\frac{1}{4}$ would have a slight advantage; but a statement in *ounces* of the weight complies equally with the law the same as when the net weight is stated in *pounds or fractions thereof*.

It will be apparent that all packages containing foods must be marked with their net weight within 18 months after March 3, 1913, which will be Sept. 3, 1914; but the wise producer or packer of food stuffs should begin (if he has not already done so months ago) marking his packages ahead of that time; and practically all of the packers in the country began marking their goods immediately after March 3, 1913. The purpose of the law was to give the sellers an opportunity to clean up and dispose of all unmarked goods before the law went into effect.—ED.]

WHEN IS THE BEST TIME TO REQUEEN?

Nature Bred vs. Artificially Bred

BY F. GREINER

The above topic has been discussed a great many times in conventions and in the press; but the case has not yet been settled to the entire satisfaction of all. It seems to me that the question is not so much *when* we shall requeen as it is, *when can we rear the best queens?* Nature has selected the early summer, when the trees are blooming, and flows are yielding pollen and honey profusely, and has practiced the rearing of queens at this time for untold centuries. Could nature have made a mistake? I doubt it. The first symptom of a colony's broodiness is the rearing of drongos, and this antedates the rearing of queens by several weeks at the least. We can hardly hope, therefore, to bring a colony into a condition, a frame of mind, by a few feeds to do its best at queen-rearing. The slow and long-continued spring honey-flow and pollen yield can not be equaled by artificial feeding. Most noted authorities of Switzerland and Germany are of this opinion, and advise rearing queens during the time when bees usually swarm. It may be more cheaply done at the close of the season, and some of our American beekeepers have practiced it more

or less extensively at such a season without apparent detrimental result to the vitality and utility of the stock of bees. We must not forget, however, that our bees are thoroughbred by many thousands of years' breeding by nature's methods; and the mistakes that we may make are not at once noticeable. It is with the bee as it is with man—his nature is strong enough to endure all sorts of mistakes and abuses. If it were not so, the human race would have long since died out; and the bee would have degenerated under the often irrational treatment. Fortunate for us that the honey-bee is constituted as it is! Undoubtedly we have blundered along many a time, and we are still continuing. We are transferring larvæ. We think it is all right. We are depriving a colony of all its brood in order that the bees may more lavishly feed the royal larvæ. We try to have young queens mated from baby nuclei, and we do other things out of the regular order of things. Is there any evidence that we are rearing better queens than formerly? any evidence that the race has degenerated? What do we know about it?

Our friend House advocates requeening in September or even later. I don't mean to quarrel with Mr. H., and I have no objections to any one requeening at any time when good queens may be had, and when it is proper to open hives. Personally I don't care to tear hives open in the late season. And, by the way, I have hunted out queens without removing a frame from the hives. When it may be done in this way requeening is quite practicable, even in the winter. But, generally speaking, during the summer season is the best time to handle bees; and beginners particularly will do well to bear this in mind.

Objections have been raised to early-raised queens. By "early raised queens" we understand such as have been raised during the early honey-flow from fruit-bloom. A certain per cent of our colonies will, some seasons, make preparation for swarming, and often do swarm, unless we intercede. With us this may happen about the middle of May or thereabouts. I hold that queens reared under these perfectly natural conditions are as good as any. Our friend House objects to the queens reared at this season because he has lost the majority of them while mating or attempting to, the weather usually being unfavorable—cool and rainy. I have to consider such an occurrence as very unusual. Before I had discovered that our bees, particularly those in the outyards, had to be looked after during this early period in order to avoid losses by swarming, I not unfrequently found colonies in each outyard at the close of fruit-bloom, which had cast swarms contrary to my expectations. It was usually discovered, before any queen-cells had hatched out, and my practice at such times had been to divide the parent colonies into three, four, or five nuclei. I do not remember ever missing or losing any of the young queens. On the contrary, I was enabled to

build up these nuclei into prosperous colonies with the brood-combs accumulating from shaking swarm-ripe colonies, etc. I can not agree with Mr. H. that it should not be a good time in May, when there is an abundance of bloom all around, to rear good queens. I should much prefer them to those reared in August or September, after all the bloom is over and stimulating by artificial methods has to be resorted to. In buckwheat sections the swarming fever sometimes breaks out anew in the month of August. This is an indication that good queens may be reared at this time in that particular locality.

How the conditions are in southern climes, in countries where our early queens are reared, I do not know; but I guess that their March and April may correspond with our May and June, and I have suspected that the queens we purchase from the South for May delivery were reared under such natural favorable conditions as outlined at the beginning of my article.

There is at present a great call for May queens here among the honey-producers of the North. We find it a profitable investment, though the queens may cost a little more than than they will later. Even if we had requeened every last colony during the month of September and October, we would still want the queens in May, possibly even more of them on that account. It pays us to divide the extra-strong colonies, such as might be expected to cast swarms during apple-bloom, and provide each queenless half with a southern early-reared young Italian queen. Thus, instead of having one colony ready for the harvest, we may have two, and avoid natural swarming by the procedure. Southern queen-breeders ought to realize that it is a great disappointment to us when the queens ordered from them for May do not reach us till June.

Naples, N. Y.

BEES AND BULK COMB HONEY AT THE KENTUCKY STATE FAIR

BY J. P. MARTINE

Our display of bees, supplies, and honey at the Kentucky State Fair, held Sept. 15-20, 1913, attracted considerable attention. It seems as though almost every one is interested in bees.

The queens in the observation hives, and the handling of the bees in the demonstration cage, were the centers of attraction. In the demonstration cage we explained fully the manner in which the bees gathered and stored honey; how honey is taken from the

bees by means of bee-escapes; how the cappings are removed, and the manner in which the honey is extracted. We also, while in the cage, gave talks on the subject of bees, explaining the part that the queen, drones, baby, and worker bees take in carrying on the different functions of the hive.

During these talks and demonstrations we never failed to have a large and appreciative crowd.

We did not make a large honey display,



J. P. Martine's exhibit at the Kentucky State Fair September 15-20, 1913.

as our object was to advertise the manner in which we put up our comb honey—that is, we cut the comb from the frames in strips about one inch in width and five inches in length, placing the same in wide-mouth white-glass jars having perpendicular sides so the cappings are shown to advantage, and filling in the space with extracted honey. This was favorably commented upon

by a great many, and we sold quite a number of jars at 75 cts. each.

We have been putting up our comb honey in this shape for the last three years, and have never failed to dispose of all we could produce at 75 cts. a jar. We have been offered 65 cents per jar by the gross.

Louisville, Ky.

THE SMOKE METHOD OF INTRODUCING SUCCESSFUL FOR NEARLY THIRTY YEARS

BY MAJOR SHALLARD.

Please credit the discovery of smoke introduction of queens to me, Mr. Editor, unless some one has a claim prior to 1885. I started to introduce queens by the smoke method at that date, and have continued ever since. My method has been to remove the old queen, and to give the new one at once, to close the hive, and then use smoke. I can hardly recall a failure. I have removed an old queen, and have given a virgin at once. I have even removed an old queen, and given a cell immediately, without any protector. In fact, one can do almost any thing with bees if they become demoralized and all have the same smoke odor.

My wife took over my queen-rearing business for one season, 24 years ago, because I had too many irons in the fire, and some were getting burnt. She also ran the home farm of 250 colonies for honey. I may mention that she is an expert beekeeper. She introduced all the queens that year with smoke. She introduced virgins into the nuclei, and had very few if any failures. She took nine tons of honey that year with the help of two girls, and her experience with swarms was somewhat unique.

The season was a great swarming one. One morning a swarm came out and settled on the trunk of a tree. Almost immediate-

ly another one came out and started for the same place; and before she had the hive ready to put them in, the second swarm started to settle with the others. She did not know what to do, and she could see another swarm issuing down among the hives. Suddenly it occurred to her to cover them up; so she put a sheet around the bees and tied it on the tree above them. The new lot settled on the sheet. The next swarm came along, so she covered up the second swarm with a chaff bag split open, and the third swarm settled on the bag. Then four more swarms issued almost at once, and they all made for the same tree. She divided the swarms as well as possible with the sheets, table-cloths, etc., and when the swarms stopped issuing she had nine on that tree, and all separate. Soon they were all hived satisfactorily.

On another occasion she had 15 swarms out during one morning, and seven of these

in the air at once; but she managed to keep the latter apart with the spray pump.

Some time ago I wrote that a good queen would not go into the top box, and the genial Dr. C. C. Miller reckoned all queens would do so if pressed for room, to which I say amen; and some other gentleman said they would go up, but "of course I would use queen-excluders." That is just the point I was making. I want queens that do not need excluders to keep them down. The old-fashioned leather-colored Ligurian queen would stay down in the bottom box and have a nice compact brood-nest, although the hive was a four-story one, and all the top stories empty; but a badly bred queen, although she may be pure, will not do this. In times of dearth she will go upstairs and transfer her brood-nest from the bottom to the top story.

So. Woodburn, N. S. W., Australia.

THE SHAKEN-SWARM PLAN AFTER MANY YEARS' TEST

BY M. A. GILL

In that masterful work of Moses Quinby he tells how he drove swarms from old box hives for the purpose of transferring, just at the time they were preparing to swarm. The splendid results he obtained, according to his book, written over sixty years ago, induced me during my early beekeeping to try the same method; and after securing the same splendid results he describes I was led to ask, if a swarm would do so well driven from an old box just before a swarm issued, why wouldn't it do as well if shaken from a frame hive just before it was to cast a natural swarm? After trying the plan until the results proved I was doing it correctly, I have never abandoned it, nor do I think that L. Stachelhausen ever did while he lived.

I can't tell when a colony is going to swarm without some kind of examination. Of course, an experienced eye can cruise a whole apiary and give a good estimate of how many colonies are about to cast a swarm; but a thorough examination will reveal the fact; and this is quite necessary, or else the work would be as unsatisfactory as putting a boy or man to watch for swarms at an out-apiary who would allow half of them to go off while he enjoyed a nap under some inviting shade-tree. So if in doubt, an examination of from three to five combs for queen-cells is absolutely nec-

essary if one intends to prevent natural swarming.

Modern medicine advises prevention rather than cure, and thus all the little kinks should be and can be used during the swarming season to prevent it. But after a colony shows a second inclination after being once thwarted, it is wise to shake it, for any further meddling will result in loafing or the raising of a new queen.

The idea that the season's results from a shaken swarm are not as good as from a natural one is erroneous; for when the brood is carried to a new stand, as it always should be, the new colony receives all the flying bees, and in many cases the combs are shaken clean, as the brood is needed for weaker colonies. I can not imagine why any apiarist should prefer to wait a few hours, or perhaps a few days, to allow a colony to cast a natural swarm that might cluster where he has to shin up a tree, when he can make just as good a swarm in from five to fifteen minutes, and the work is a pleasure.

Three people can handle from one thousand to twelve hundred colonies in out-apiaries. Of course, it is needless to say that this can not be done without a month of almost slavish work. But three can not attend to that many comb-honey colonies scattered over the territory they would require if allowed to swarm naturally.

The whole fraternity has been seeking for years for a race of bees, or a particular hive or some system of management, that will eliminate swarming when working for comb honey, and about so often some few declare themselves "progressives," and will fly to the journals that they have "the hive" or "the race," and that the time has come when all progressive apiarists should handle hives instead of combs; and then the first season something out of the ordinary happens, and all their hopes are shattered. In my opinion the way to do is to reduce swarming to the minimum by all the known methods, and then handle the minimum by the shaken-swarm plan when working out-apiaries for comb honey.

It seems to me that so much has been

written upon the mode of procedure during the past ten years that the details are unnecessary. Some complain of absconding. This will often happen if the operator fails to give a frame of brood or shakes the swarm into a hot hive and then leaves the hive out in the hot sun. Temporary shade, at least, should be provided at such times. During the past season we shook 300 swarms, and I do not recall that a single one absconded. Any one who thinks this system will propagate a swarming race can replace the swarm-cells with cells raised from their non-swarming colonies. From four to five visits every seven days will practically cover the swarming season.

Hyrum, Utah.

THE LET-ALONE HIVE; THE "LONG-IDEA" AGAIN

Producing Wax and Honey

BY A. W. YATES

It is quite natural to assume that out-apiaries are those operated by persons who are in the business for the dollars and cents there are in it, or who take as much from their bees as they can with as little outlay as possible. One motto of the late E. L. Pratt was, "Make your bees pay their way and a little more." Beekeeping as a hobby and beekeeping as a business are two different propositions. If we are in it for business we must make them pay their way and a little more or we shall soon go under.

The great drawback in the maintenance of outyards is the disposition of the bees to swarm. If this could be done away with, and the mass of bees held together, all other difficulties could be overcome. The modern hive as it is constructed to-day was never built with this thought in view; and if such hives are used for this purpose they require constant attention, and at times are the source of a good deal of annoyance. If at the same time some one bobs up with something new in a hive our manufacturers are skeptical, and very apt to look aghast at it unless it presents something very striking in its favor.

It has been said that "Bees, when given plenty of room, will spend less of their energy in swarming and more to the production of honey."

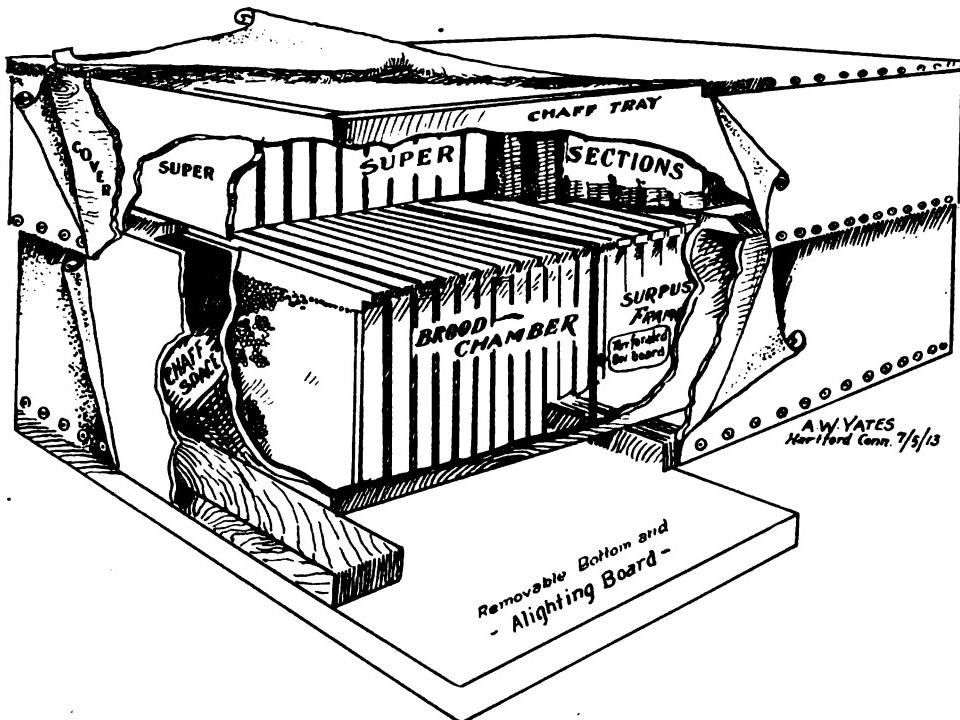
A few years ago I constructed several large hives holding 25 frames each. These hives came so near filling the bill that I made more, and am using one of similar construction altogether at present.

It will be seen by a glance at the illustra-

tion that this is a double-walled hive; and, being covered with a good quality of roofing paper, it is both warm and dry, and at the same requires no paint nor even lumber of first quality in its construction. Living near a city I am usually able to obtain shipping-cases at the hat-stores for about ten cents each, one of which contains nearly enough lumber to build the body of a hive. The hive I shall describe is intended for the "L" frame; but it can be used with other styles of frames.

The side boards are $39 \times 9\frac{1}{2}$ inches, four for each hive, nailed together in pairs, as in A in diagram. The inside board of the front end is $18\frac{1}{4} \times 9\frac{1}{2}$ inches, while the outside board is six inches longer, and nailed together, as in B, so as to lap by and form the corner, as in C. The opposite end of the hive, being used only in summer, is of single thickness, as is also the bottom of the surplus compartment. When the hive is nailed together the walls are packed with planer shavings or chaff. A narrow board, E, is nailed on the upper wall edge to hold the shavings in place. The eight-inch telescope cover gives plenty of room for a chaff tray for winter, or two supers side by side in summer.

This hive, when so constructed, will hold 25 frames, ten of which answer for the brood-chamber, and are separated from the others by a perforated division-board, D, reaching within half an inch of the bottom of the hive. A narrow strip of tin bent at an angle of about 45 degrees is fastened to the bottom edge of it, and this is placed in



the hive with the bent tin turned toward the brood-chamber. The object of this is to allow the bees free access from the entrance direct to rear of the hive beneath the division-board; but in case the queen should come in contact with it she will walk down until she comes to the tin, which will turn her back to the combs.

This division-board, although not designed by me, I consider an important feature of the hive. Sometimes, as in case of a virgin queen returning from her wedding-flight, or by the excessive use of smoke over the brood-chamber, a queen will find her way to the rear of the hive; but care should be taken to provide a young laying queen.

The bottom and alighting-board are removable, and the summer entrance, $\frac{7}{8} \times 14$, or the full width of the ten frames, is closed for winter with a block, E, through which wire nails are driven $\frac{3}{8}$ inch apart as protection from mice.

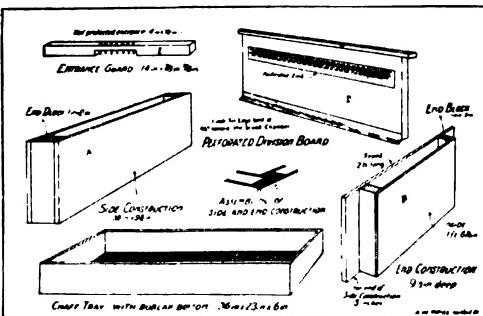
Some points in favor of this hive are simplicity and cheapness of construction; easily built by any one at all familiar with tools; no paint; provides plenty of room so that three or four visits during the season are all that is required; and the protection it affords for wintering.

It has always been an opinion of mine that bees produce wax at all times when producing honey, and that this wax, unless

they have a place to use it, must necessarily go to waste; that they will produce both much faster when allowed to hang in their natural clusters. Taking advantage of this fact, only narrow starters are used in the 15 frames for surplus honey; and as these frames are all in one lower story they are accepted one at a time, and for that reason will be finished much quicker than if the bees had to go above.

These fifteen frames, holding, when completed, about 90 pounds with 64 sections in the two supers above, give the hive a capacity of about 150 pounds, or sufficient, usually, for the season in this section.

The season's work is commenced during April. The chaff trays are removed, the chaff division-boards that are used during



winter are exchanged for the perforated zinc ones, and, after examining the colonies for queens, etc., the frames and supers are put in place and need not be looked at again during the season, although I try to see them two or three times.

When the honey is harvested, large covered cans are taken to the outyards, the surplus frames are removed from the hives, and held toward the light to see where the light and dark honey lie; the light honey is cut out into one can, and the dark into another. In this way we are able to grade it—something we are unable to do in extracting. It is taken home to be separated from the comb, which is accomplished by means of strainers. A table is used for this purpose having a top made of galvanized-wire screen, three mesh to the inch. A cheese-cloth strainer is made to hang below to catch the particles that pass through the wire screen. An uncapping-can may be used for small quantities.

When every thing is in readiness the chunks of honey in the cans are all mashed fine and poured on top of the wire-top table to drain. The table should be elevated above the storage tank so that the honey will flow into it without extra handling.

It will be noticed by the foregoing that no extractor or expensive extracting outfit is required. The crop can be handled leisurely, and at a time when the weather is more agreeable than it is sometimes when extracting. Results can be obtained with much less labor, time, and expense. Colonies are less stirred up and excited from giving up their stores. We are able to produce fully as much choice honey, I think, as by any other method, and a good many pounds of the very finest virgin wax, which of itself is no small item.

Hartford, Ct.

[A number of beekeepers in New England, particularly Mr. Allan Latham, Norwichtown, Ct., and Mr. Yates, have been working on this let-alone principle of keeping bees—that is to say, they have been experimenting with large hives (or Long Idea hives)—so large, indeed, that they have sufficient capacity to carry a whole season's crop with little or no manipulation on the part of the beekeeper. A year ago last summer, when attending a convention of beekeepers at Amherst, Mass., we listened to an address by Mr. Yates which he delivered on this subject before the convention. At that time we requested him to prepare an article, with illustrations, showing his system of management, and the foregoing is the result.

Mr. O. O. Poppleton, of Stuart, Fla., has

long advocated the use of a 24-frame or Long Idea hive having a capacity similar to the one here shown. Many years ago he used a 24-frame double-walled hive in Iowa. He liked it so well that when he went south he continued to use the same hive, but, of course, without the double walls. We will have an illustrated article showing Poppleton's entire system, which he was using till within a year ago. That there are advantages in the system cannot be denied. Whether the disadvantages for the average bee-keeper will outweigh the advantages we will not attempt to say; but it is a system that the average reader can afford to look into with an open mind. A little later on we shall show another system somewhat similar, and yet very different, by J. E. Hand. This is a 16-frame hive capable of vertical expansion. More anon.—Ed.]

Conversations with Doolittle

Continued from page 369

up to a condition where no desire to swarm has become manifest; and those that have become "broody" are allowed no comb of brood, but several thousand empty cells at the time of shaking. In the mean time the super of sections right above the combs they are shaken on has from four to twelve sections full of drawn comb left over from the previous season. In this way the colony which has not become broody at time of shaking keeps right on with feeding the queen, removes the honey in the brood-combs to the sections, and the queen deposits eggs without interruption. On the other hand, the bees and queen from a broody colony find their "house all swept and garnished," with no incentive but to go right to work as any good swarm should when coming in possession of a new home. The condition and tendency in both cases is to rear brood in the brood-chamber and store honey in the supers to the best possible advantage.

Spacing Danzenbaker Frames Wider Apart in Extracting Supers

I have found the most effective method for spacing Danzenbaker frames for extracting to be to remove the supporting rivets and replace them about two inches nearer the top-bar. This can be done without mutilating the comb badly. The end-cleats of the hive must then be raised to a corresponding level, and the frame will hang perpendicular by its own weight, just as do the shallow Danzenbaker extracting-frames. As one seldom wants to reverse the frames, this position for the rivet is as good as the center.

Stouffville, Ont.

F. L. POLLOCK.

Heads of Grain from Different Fields

Too Much Honey in the Brood-nest for Satisfactory Breeding

We have a yard of 108 colonies in which the bees are very strong for this time of the year, having at this writing an average of four frames of brood; in fact, they have almost every empty cell filled with brood. The other four combs are solid with honey to the bottom-bars. There is, of course, some honey in the frames having brood. In this locality the fruit bloom is on about May 5 to 10, to be followed immediately by locust, then clover and sunnac, with practically no playspell between. Now, in your judgment which would be the best—to extract about two combs or put on supers early and have them carry up the honey in order to give the queen room for laying? We run this yard for comb honey. Do you think the queen should have six combs for brood two weeks before fruit-bloom? Last fall these bees had every frame solid with honey to bottom-bars with an exception in most cases of a small nest extending about three inches from the bottom-bar in two combs. They wintered finely.

Conneaut Lake, Pa., April 8. R. A. NUSBAUM.

[We are a little in doubt as to what kind of answer to give. As a general proposition, plenty of honey in the brood-nest, where there are at least six frames of brood is a pretty good asset. In the two weeks intervening, considerable of this extra honey will be consumed in brood-rearing providing there is no source of nectar at the time. That being the case, we would not advise disturbing the brood-nest. You have an almost ideal condition.

You might try taking away two combs of stores from a few colonies, but we would not extract, because you may desire to give them back to the bees later on, and there is nothing like combs of honey for brood-rearing. Of course, the two combs removed should be replaced by empty combs in which the queens could lay.

It is very doubtful if the bees would carry the honey up into the supers, although they might do so.—ED.]

Plan for Requeening

Referring to the article, page 234, in the March 15th issue, "To make increase and prevent swarming," I should like to inquire how it would do to place the old queen above with a queen-excluder between the brood-chambers, with only one frame of eggs below. The excluder would prevent the old queen from coming out with a swarm. When the young queen below would begin laying, the old queen could be destroyed. Would not this be a good way to requeen each year and prevent swarming?

GARDNER B. WILLIS

Providence, R. I., March 20.

[We can see no good reason why you should not be able to requeen your bees successfully by the method which you describe, providing the colony is very strong and honey is coming in every day. Without these conditions the lower story might not start cells. However, in case the honey-flow should be cut short before the young queens hatch, you might awake some morning to find them all destroyed.—ED.]

A Swarm that Stored More Honey than old Colonies

I have some strong colonies that make but little honey. Last year we caught a swarm on May 1 as it came over our farm. It filled its hive and two full supers and part of another. My old colonies, apparently as strong, filled only one super with honey, and two did not make any surplus, though strong. These were very cross. In the fall we could

detect a sour smell about the hive. Can you tell me what to do? Do I need new queens?

Roxbury, Ohio, April 7. G. E. MORRIS

[For some reason a swarm, as a rule, works with a vim not known to the colony which does not swarm. This will partly account for the fact that your newly hived swarm produced more honey than your old colonies. They should have produced some honey; and since some of them did not, it would appear that there must be something wrong. Some colonies of bees, although strong, never do much in the supers, and in such cases it is wise to requeen.

It may be that the queens are old; and while your colonies were apparently strong, yet the failure of the queens to keep the brood-nest filled with eggs and young brood would allow the bees to store the honey there instead of in the supers. Requeening would be the remedy for that also. Since you detected a sour odor in the fall we would advise you to look sharp for European foul brood, although this odor may have come from a honey-flow from fall asters or goldenrod.—ED.]

More about that Peculiar Disease

The editor asked for information, pages 547, 548. Aug. 1, 1913, regarding a peculiar disease appearing in Colorado and California. We have the same trouble around here. It starts about the last of June or first of July, and lasts six or seven weeks. I first noticed it three years ago. I thought the bees were robbing. The front of the hive would be covered with bees, and the ground alive with crawling bees too weak to fly. Each hive seemed to be killing its own bees. They kept at it till all or almost all the old bees were killed. The combs were well filled with brood of all ages. There was no honey coming in at the time, and the strongest would rob out some of the weakest.

Napa, Cal., Feb. 19.

W. E. GRIFFIN.

Satisfactory Experience with Light Brood Foundation in Sections

Referring to Geo. T. Whitten's article, Feb. 15. page 139, I have had three years' experience with light-brood foundation in sections. My bees work this more readily, and have very much increased my honey crop since using this foundation. I can also do a faster and better job by putting it in the sections. I have tested the honey by cutting out the partly filled sections, and I find the midrib at the top slightly heavier than in sections. Where I used super foundation, especially next to the wood, when cut $\frac{1}{4}$ inch below, I can tell no difference. I have asked my customers if they have any complaint about the midrib, but none have had any so far.

Ceres, Va., Feb. 25.

F. A. CRABTREE.

A Note of Appreciation from a Back-yarder

I have, for several years, been a subscriber to your paper, and have always read it with considerable interest, but never before have I felt it my duty to make any special comment on it. However, I feel quite confident that the last issue, that of April 1, is by all odds the most valuable and interesting to beekeepers of any periodical I have ever read on the subject of beekeeping. I enjoy very much the experiences of those old tried beekeepers, and their explanations are of such a character that almost any person, though quite young in the beekeeping game, could surely understand them.

I am what is commonly called by the big men in the game one of those back-yarders; that is, I have what I think is the nicest little apiary of its size, from every standpoint, located in Nebraska. I have seventy colonies of bees, all in up-to-date ten-frame

hives, placed in pairs on cement foundations, and all the necessary apparatus for working them. I have been in the business nine years, and have made a success of it every summer. I made one bad winter failure when I commenced cellar wintering. The first season I prepared my cellar in accordance with the instructions of several men who had practiced cellar wintering. I put in thirty colonies of bees, and took out seven living in the spring. Since that time I have used some methods of my own for forced ventilation, and have never lost a colony of bees that could have endured one month of cold weather out of doors. Last season I commenced with forty-two colonies; increased to seventy, and netted myself \$900.

I have noticed in GLEANINGS quite a number of arguments from beekeepers for and against cellar wintering. I am quite confident that in this locality cellar wintering is by all odds the better. The saving in honey would amply pay for the construction of the cellar. I wintered my bees in 1912 on an average of 8 lbs. and 2 ounces of honey per colony, weighing them in and out.

Omaha, Neb., April 14.

H. C. COOK.

Some Interesting Questions

1. Where "shook" swarming is practiced, how soon can the two colonies be united without danger of swarming?
2. Will queen-cells in an upper story with wire cloth between the two stories have a tendency to induce swarming?
3. How much space can I leave between the bottom-bar of frames and the hive floor without danger of combs being built between?
4. How much space can I leave between dummies, and have no comb built between?
5. What should I do with combs that become moldy?
6. Will the steam-heated uncapping-knife work satisfactorily on combs of cold honey?

Coffeyville, Kan., April 16. BIRD HART.

1. Your question implies that you wish to practice "shook" swarming as a method of swarm control and not for increase. The intervening time between shaking and uniting again without danger of swarming would depend considerably on the honey-flow. If uniting were done near the close of the honey-flow there would be little danger of their swarming for the rest of the season; but if honey-flows should come on later the bees would be likely to swarm.
2. In our experience we have not found that queen-cells in an upper story with wire cloth between two stories have any tendency to make the bees swarm.
3. It is generally regarded that if more than one inch of space is left between bottom-bars of frames and floor boards there is danger of combs being built in the space. However, some beekeepers report leaving much more space than that, without that trouble.
4. That depends on how much the bees are crowded during a honey-flow. Three-eighths to one-half inch is about right.
5. A hive containing moldy combs may be set under a very strong colony where the combs will be cared for and cleaned up; or one or two moldy combs may be placed at a time in the brood-nest of a strong colony.
6. On combs containing cold honey is just the place where the steam-heated uncapping-knife will do the most satisfactory work. It is hard to keep an unheated knife from gumming on such combs.—ED.]

Getting Wild Bees out of Caves in the Rocks in Nevada, etc.

I am very busy at present, nailing up and getting ready for increase of my bees. They have been building up fast since the 8th on buckbrush.

I started in three years ago with GLEANINGS and the A. B. C. of Bee Culture, knowing practically nothing about bees. I took them out of buildings and cavities in the rocks, and used good queens. I had 21 swarms a year ago, and increased them to 43 last season and got 2800 lbs. of surplus honey from them—half fancy comb, half extracted, and captured 27 more swarms, so I am starting this season with 70. So you see bees "go some" in Nevada, even if it is classed as a desert, in the East.

Mason, Nev., March 20.

A. J. TEDDER

A Queen-excluding Honey-board Under the Hive to Prevent Swarming

I have 14 stands of bees in Danzenbaker hives. I am a day laborer, and do not want many more bees. How would it do to put a queen-excluding honey-board on the bottom-board under the hive at swarming time, so that the queen cannot get out?

Flora, Ind., April 6.

S. W. HIGH.

[Our opinion is that your plan would be a failure, because the queen-excluder would soon become clogged with the bodies of dead drones; and, besides that, it would be a serious hindrance to the loaded bees passing through. A better plan would be to use an Alley queen-and-drone trap on the front of the hive.—ED.]

Feeding and the Kind of Sugar to Use

How do you prepare sugar for feeding bees? Is there any profit in feeding? What kind of sugar is used?

Oakland City, Ind., Mar. 27. ALBERT JORDAN.

[Sugar is prepared for feeding by dissolving it in water, thus making a syrup of a consistency varying with the time of year in which it is to be fed. For fall feeding it should be about half and half. For spring feeding within the hive it should be about three of water to one of sugar; and for outdoor feeding about nine water to one sugar. Generally speaking, stimulative feeding in the spring is a very good thing for the beginner to let alone. Granulated sugar only should be used.—ED.]

Ground Ants Bothering Bees

My bees are bothered by the ordinary garden or ground ant in the summer. Do they hurt any thing? Tell me how to get rid of the pests.

Gilbert, Pa., March 30. ELMER E. HINTON.

[You can get rid of the ants by finding their nests and with a crowbar or some similar instrument punch a hole down about two feet into the ground in the middle of their hill. Drop in about a tablespoonful of carbon bisulphide, and cover it up. This ought to get rid of all the ants. If they should bother you again from the same nest, give them a little heavier dose.—ED.]

Value of Bees in a Cucumber Greenhouse

A neighbor (a market gardener) has four colonies of bees to fertilize his hothouse cucumbers. I take care of them, and get the honey. From them and two in our back yard last season I obtained 1007 lbs. of extracted honey, which we sold at 12½ cts. per lb.

The second week of picking, the owner of the four colonies picked 200 dozen cucumbers per day, and received an average of 80 cts. per dozen.

Elmira, N. Y., March 18. P. F. CONKLIN.

Preventing Bees from Flying when it is Too Cold

The best method I have found to check spring dwindling is to place the front of the hive to the north and put a shade-board on the south side. When it gets warm enough so the bees can fly they can nearly always get back to the hive.

Elsie, Mich., March 22.

O. K. CARTER.

A. I. Root

OUR HOMES

Editor

Fear not them which kill the body, but are not able to kill the soul; but rather fear him which is able to destroy both soul and body in hell.—MATT. 10:28.

MORE ABOUT THE BOY WHO WAS DROWNED AND AFTERWARD RESTORED TO LIFE.

The matter for Our Homes in our issue for May 1 was prepared hurriedly, so as to be in time for that issue. Later I found out where the boy lived, and visited his home. A little inquiry elicited the fact that the two boys mentioned were truants from school. The teacher imposed some penalty—I think staying after school, or something of that sort; but, like many another thoughtless boy, he sought to outwit his good teacher by running away from school and going in swimming. I wonder if a guilty conscience did not have something to do with his getting “rattled” while in the water, so that he could not swim. I suggest this because of some experiences of my own when I was about his age. This boy’s name is Vaughn Tharpe, and he lives in the outskirts of Bradentown. Let me digress a little.

When I saw that boy repeatedly going down into the water, and was evidently nearing his death, a terrible load of responsibility rested on my shoulders. I recalled vividly a recent story in one of the dailies of a boy about his age who was run over and killed by an electric car. When the poor mother saw his mangled and lifeless body she became a raving maniac. It took several strong men to hold her, and her screams of mental agony were heart-rending. I thought of *this* boy’s mother. Suppose she saw *me* standing apparently helpless while her boy was going down to death. If the readers of GLEANINGS could have seen me run as I rushed to the house to tell Mrs. Root to alarm the neighbors and to get a doctor, they would have scarcely believed I was close to 75 years of age. Luckily I was very lightly attired; for in spite of Mrs. Root’s protests I work in the garden with just as little clothing as possible. When we get to be past threescore years and ten, most of us get along with our work better by disposing not only of every pound but of every ounce of useless apparel. I think I can run for a short distance about as fast as I ever could. A sacred responsibility rested on me to spare no effort, physical or otherwise, to restore that boy to animation; and, by the way, every man, woman, and child should be taught by competent authority *what* to do in case of drowning. I knew the water must be first gotten out of the boy’s lungs,

for I had an experience of my own of that kind years ago, when I, too, nearly lost my life. I had sense enough to lie down on my face with my head downhill; and it was a feeling of relief I shall not soon forget when I found I could breathe again. I supposed the boy would revive in a like manner; but he showed no signs of life until Wesley turned him with his head up hill and began to roll and rub him. I was not present when he revived; but Wesley tells me the boy finally coughed and sneezed, and then expelled another great lot of water from his mouth and nostrils. When I reached the place, just after calling the town doctor, the boy was able to sit up and talk. Several days afterward, when he and his mother called at our place to thank Wesley and myself, I questioned him about playing truant, and he replied, “Mr. Root, you may be *sure* I will never run away from school again as long as I live.”

Let us now consider our text for a moment. You may wonder what it has to do with what I have been telling you. Let us look at it this way:

In answer to my prayers—mental prayers, perhaps, although I think I spoke out loud when the boy sank for the last time—God heard me; and when the water threatened to be over Wesley’s head,* so that he feared he could go no further, I prayed for footing for the next step, a little higher up, *that* prayer was answered; and the third time, when Wesley said all his efforts were unavailing, I prayed again as I hastened off for the doctor. The prayers were answered, and the boy is now alive and well.

But, my friend, what does it all amount to, providing this boy should grow up to be a drunkard, or, what is more likely, a cigarette fiend? This “Safety First Society” that promises to do a mighty work in saving the lives of our children is a grand undertaking. Every man, woman, and child should join it and work for it. The mothers

* I tell you, friends, that was a serious and critical time when I took the responsibility of telling Wesley, a man who could not swim, to push ahead when he had to raise his chin to keep his mouth out of the water. I came very near indeed having not only a drowned boy on my hands and conscience, but a drowned man also. Some of you may think that one who cannot swim could push ahead a few feet under water. Not so. In a second more the water would have taken him off his feet, and then he would have been as bad off as the boy. There was no one near except the other boy, standing still and shivering on the opposite bank. I could not get him even to run for help; and there was a tangled thicket along both shores of the stream, and it was quite a distance to any house. If there was ever a time when one needed to pray for God’s help with all the faith and energy he possessed, that was the time.

especially will do this; but what does it amount to if we simply prolong life and do nothing for the immortal soul?

Lucy Page Gaston (may God bless and sustain the woman) informs us through the *Union Signal* that last year there were manufactured in the United States *three billion eight hundred million cigarettes*. She says that new factories are constantly springing up to make cigarettes for the boys. Many of the older factories are working night and day, the demand is so great. If you take a little pains you will discover that children are learning to use cigarettes on the sly almost if not quite all over the land. They are hired by the manufacturers to distribute cigarettes and help cultivate an appetite for them. Many a parent does not know his boy has ever touched a cigarette until the child is pretty well along in the habit.* The government of the United States some time ago started a crusade against "habit-forming drugs," and later still a movement against "baseful drugs."

Now, wouldn't you think these two organizations would hit cigarettes? So far as I can learn, they overlook or ignore cigarettes because of the great American Tobacco Co. The liquor business has shown itself to be bigger than Uncle Sam; but just now Uncle Sam is waking up and rolling up his sleeves. The Anti-saloon League has sometimes suggested that we should not undertake *too many* jobs at once. I think that at one great temperance convention they thought best that Lucy Page Gaston should not talk about cigarettes, as it might divert attention, just at a crisis in enacting laws against the liquor-traffic. May be that is wisdom; but, oh dear me! can we neglect our boys?

Once more: A kind Providence permitted me to save that boy's life. Is that all? Shall I now drop him and let him drift away out of my sight among the multitudes? God forbid. The poor mother said he had not been going to Sunday-school since they moved into Bradenton because he could not dress as well as the other children. But I talked with the mother and with the boy, and I also talked with Mr. Rood, the superintendent of our Sunday-school, and he will look after the boy. Fur-

* The city of Tampa is about sixty miles north of Bradenton; and besides a railway there are two steamers that make the trip from Bradenton and return every day. These steamers not only bring cigarettes but liquors as well into Bradenton, which has never had a saloon, and, by God's grace, it never will have.

After the above was put in type I came across the following which I clip from the *Union Signal*:

"In Tampa and Key West the conditions are appalling. About eighty per cent of the children between eight and sixteen are or are becoming confirmed tobacco victims. The crusade there should be continuous and persistent, educational, and in the line of law enforcement."

thermore, I am going to send the boy GLEANINGS; and while you are reading the words I am now dictating, the boy may be reading them also. I prayed that his life might be spared, and God heard and answered. Now will you not unite with me and pray that a higher and more important life may be developed, and that the boy may grow up to be a *benefit* to humanity? And while we think of him and pray for him, shall we not also think of and pray for all the boys (and girls too) of our great nation and throughout the wide world? I am rejoiced to know that there are movements on foot to save the lives of the boys and girls in India, China, and everywhere else, where they are neglected and suffering.

When I was two years old the doctors told my good mother that there was no hope—I could not live. But she prayed, and had faith to believe that I might live in spite of what the doctors predicted. Of course she was thankful for this; but she was not satisfied, and kept insisting and declaring all the time, until I was a married man and had children of my own, that there was a higher life for me that I had not yet touched. I, a grown man, laughed at her faith and her continued prayers and importunity. She said, as some of the older readers of this journal may remember, that I was yet going to work for Christ Jesus exactly as I had been so far working for the honey-bees; and that is why, dear friends, I am exhorting you all to-day not only to care for the physical health, life, and well-being of these little ones growing up in your homes, but for that other life in God's spiritual kingdom—that "kingdom" we talk of in that wonderful prayer, "Thy kingdom come, thy will be done on earth as it is in heaven."

SHOULD A MINISTER OR SUNDAY-SCHOOL TEACHER USE TOBACCO, ETC.?

Dear Brother Root:—I say, God bless the man who strikes such blows at the liquor, cigarette, and (for that matter) all other conventional follies right from the shoulder. May he give more strength to your muscle.

It is, perhaps, none of my business; but candidly I should like to know, if you were a regularly ordained minister, would you dare to speak as plainly to your flock as you write with your pen? If so, I venture the assertion you would be asked to get "down and out."

Please come with me to one of the largest churches on this coast. Its pastor gets a big salary—I can not say how many thousand dollars. It makes me feel unusually "warm above the collar" when I think of another pastor with a large family who gets \$700, lives in a place where you would hate to put your chickens to roost, and can't afford to give his children a ten-cent ride to the beach while the other takes his annual trip abroad or across the continent.

Well, the pastor of the big church thunders against the liquor traffic, white slavery, the slit skirt, tango,

and all other up-to-date dances, and about every thing else under the sun but tobacco. On this theme he is delightfully silent. Many of his officials, including deacons and Sunday-school teachers, smoke and chew, and he knows on which side his bread is buttered.

Allow me to introduce you to a lad about eighteen. A year ago he was a church and Sunday-school goer. To-day he is in the high school, and smokes cigarettes. Does he still come to Sunday-school? Of course not. For convenience I will call him Tom. Meet him, if you will, Mr. Root, and say, "Tom, my dear lad; cut out those cigarettes. Don't you know they will ruin your mind, body, and perhaps your soul?"

If I were Tom I'd say, "Mr. Root, go to Mr. Blank, the church deacon, and Mr. Dash, the Sunday-school teacher. Get them to give up smoking, then come to me. I'm following their example."

"Yes, but you say they smoke cigars. So will I when I can afford to. It costs 10 cts. and up for a cigar. I can get a dozen cigarettes at that price."

From my observation this condition obtains in all churches. In face of these facts, is not the church (no, not the church, heaven forbid, but so-called members) responsible for our boys going to the devil by way of the cigarette route? My wife (one of the very best on earth) is an ardent worker among the little folks in Sunday-school. I tell her if we had a boy I'd hesitate sending him to Sunday-school for fear lest, some day, he would come home and say, "Father, my teacher smokes; and when I can earn money I shall do the same." See the point! Paul says, "If meat make my brother to offend I will not eat it (not much danger nowadays of meat making our brother to offend—the price is too high); but the good Lord knows tobacco is making our boys "offend" beyond all conception; and to my mind there is no factor helping to spread this blasting plague more than the example of church folks.

In talking this way to some people they say we ought not to look at church members; we should look at Jesus. What silly rot! If church members are not to be looked at and imitated, then in the name of the Master what on earth are they for? What does the average boy or girl know about Jesus, any way? Ask them why we observe Christmas or Easter. They know it has something to do with Santa Claus or a new Easter bonnet. Beyond this they are ignorant, and why not? They learn nothing of him in the public schools, nor in their homes, and they don't go to church or Sunday-school. No, they can't see Jesus; but they do see church members, his professed representatives; and if their example is not fit to follow, then in all common sense whom can they follow? My feeling is, "when the roll is called up yonder," 95 per cent of our church members "won't be there" unless they get a "move on" and change tremendously their fashion of living. If this is not so, I need to be shown, and I'm not from "Missouri" either.

Yours for Christ and the boys,
Dixon, Cal., Dec. 18. JOHN T. BOWEN.

My good brother, I fear you put it too strongly. Our Medina, O., pastor and our Sunday-school teachers do not use tobacco, and I think I can safely say the same here in Florida. Our Sunday-school superintendent frequently talks to the boys very plainly and emphatically about avoiding tobacco. Billy Sunday, whose converts are continually going up into the thousands, hits heavier than I do, yet his "audiences" don't seem to grow small. Don't we all need a little more "Pollyanna"?

POULTRY DEPARTMENT

STARTING THE EGGS UNDER HENS.

Mr. A. J. Root:—I am much interested in your writings, especially on poultry. I am in the poultry business in a small way, and I want to tell you about my splendid hatches with a fifty-egg Cycle incubator.

Several years ago you suggested starting the eggs under hens, testing out the infertile ones, and at the end of a week putting the fertile eggs in the incubator and setting the hens over again. The first time I tried your plan I put 56 eggs under hens, and on the fifth day tested out five infertiles, and at the end of one week put the 51 fertile eggs in the incubator and set the hens over again. Out of the 51 eggs in the incubator I got 50 chicks. The second time I put 52 fertile eggs in the incubator and got 52 chicks—fine, strong, and vigorous. Every egg hatched. I couldn't have done better. I call this way of hatching chicks the *Root* plan.

I have one good vigorous yearling cock (S. C. W. Leghorn) mated with 25 splendid two and three year old hens, and the fertility has been very good indeed; but I find that hens will start every germ, which an incubator will not do; so if one has enough hens to start the eggs for a small incubator it is quite a saving in eggs. I am using Buff Orpingtons for sitters. I made a tester after your plan, out of a "Mother's Oats" box. I like it very much indeed, but think I have improved it somewhat by having my wife sew some soft cloth around the open end that fits up to the forehead and nose. Being soft, it shuts out every particle of light, fitting closely to the face.

We use the sun for testing when possible, and can do it more thoroughly and quicker than with a lamp. I have 104 fertile eggs in two Cycle incubators, and really I shall be disappointed if I don't get more than 100 chicks. I have hatched several hundred this spring, and have had only one cripple. I have advertised a little, and found that there is a good demand for baby chicks. Several of my six-day-old White Leghorn incubator chicks followed a neighbor a quarter of a mile from the house, came back with him, and seemed as fresh as ever when they got home. I have never had such vigorous chicks before.

DWARF ESSEX RAPE FOR CHICKENS.

I do not remember ever hearing you say any thing about rape for chickens. In my estimation there is no green quite so good for poultry as dwarf Essex rape. You can sow the seed here about the middle of August, and in six weeks you can begin to cut or turn the chickens on it. It can be mowed or cut (if not too low) three or four times during the year, and will grow right up again.

I have a small patch that I sowed the middle of August. When it was large enough I turned the poultry on it and they stripped the leaves right down to the ribs. Then I cut the old ribs off and let it grow out again. It is now fine and large, and ready for the knife or the flock. It certainly is a wonderful plant for poultry.

At first I tied the leaves in bunches and threw them in the pens; but, of course, that way they could not eat the ribs, which was a great waste. I

now have a clover-cutter, and cut the leaves, ribs, and all, so there is nothing wasted:

Lakeland, Fla., April 28.

C. H. TIDD.

Our friends, or some of them, at least, will recall that this matter of starting eggs under a hen came up some time ago, and several communications have indorsed what I said—namely, that a sitting hen would produce more fertile eggs from a given number than any incubator made. If I am correct, even the Cyphers people were obliged to admit that this is true, at least to some extent. My experience would indicate that letting a hen have the eggs for just three days is an advantage, for in three

days' time, with the egg-tester mentioned in the above letter, the fertile eggs could be readily picked out.* The suggestion of having the pasteboard box lined with cloth where it touches the face is a very important one, for just a little light getting through a crack or crevice will mar the vision; and the very best place to use it is in a dark room where a single ray of sunshine comes through a knothole or crevice. If you wish to be able to test out the fertile eggs in *three days*, be careful to have every thing just right. I am glad to see such a good report from near my Florida home.

HIGH-PRESSURE GARDENING

THE DASHEEN; KEEPING IT CLEAR FROM WEEDS, ETC.

There is one important point in regard to this new vegetable that I think I failed to mention. When it first comes out of the ground, as perhaps hundreds of our friends are now noticing, it has a single point, almost as sharp as a needle. This will push its way through very hard and uninviting soil. In spading our ground over where we had dasheens last year, many of the small tubers were turned under; and as I directed Wesley to go down a full foot with his spading, many of these little tubers were a foot under ground; and although it was some time before they got up to the top—they did eventually, almost every one of them. I have mentioned this matter before in speaking of the "dasheen asparagus." The shoot or stalk will, of course, be bleached white until it reaches the surface. Now, when it once gets up to the light, if you throw some dirt over it, it will keep right on shooting up; and in this way you can get these asparagus shoots, as we call them, not only a foot, but even 18 inches long. Now comes the point of my discovery:

Many of you have weedy gardens; and as the dasheen is sometimes three or four weeks or more in starting, there may be quite a growth of weeds. If so, you need not try to pull them unless you choose. Just hoe some nice mellow earth right over the dasheen plant. The dasheen will shoot right up through this soil, but the weeds cannot do it. So here is a short cut in the way of cultivation. Plant your dasheen tubers in a moderately deep furrow, as we plant potatoes. Now, instead of filling up the furrows with dirt, just fill them up about half way. When the weeds and dasheens both get a start, throw on a little more soil. In a few

days the dasheen will get up through this additional soil, and perhaps some more weeds may start. If so, just turn on a little more dirt, and in this way you can have a clean field without any hand-hoeing at all. The cultivation can all be done by a hand or horse cultivator.

THE AMADUMBE OF SOUTH AFRICA.

Just before we left Florida we tested the amadumbe by taking off some of the side shoots, tops, and tubers; and it is so near like the Trinidad dasheen we have been talking about, that we will call it all one and the same thing. Thus it seems to transpire that the dasheen that is so new to America has for years past been one of the main products for human food over a large part of the world. Once more, what is the matter with our American seedsmen who have heretofore been so eager to find something new and valuable for the home garden?

THE DASHEEN IN ALABAMA.

Dear Mr. Root:—I took pleasure in reading what you had to say about dasheen in a recent issue of GLEANINGS. The Bureau of Plant Industry was kind enough to send me 24 tubers or bulbs last May. These were planted about May 10. The first part of the season was very dry; but in August the rains were plentiful. In October I used a common scoop shovel and dug the crop. The ground was rather wet, and I was afraid they would freeze if left longer. The entire roots, corns, tubers, and dirt, with a portion of the rank necks, were banked in dirt. The dirt was allowed to fall in between the roots so that no two plants touched each other.

To-day, March 17, I took these dasheens out of the dirt, and every one of them was as sound as a

* As to why a sitting hen is able to start the germ in eggs that will not show any signs of life at all when placed in an incubator, no one has so far been able to tell, so far as I know; but notwithstanding, I do believe it will pay to keep sitting hens employed, especially the large breeds that want to sit so much, in preparing eggs to be put in an incubator. My experience agrees exactly with what our good brother tells us.

dollar. Not one had rotted. One corm, after all the tubers, roots, and dirt had been separated from it, weighed one pound and 15 ounces. The corms kept as well as the fresh or young tubers.

My reason for calling your attention to this is because you mentioned the fact that the corms were not so easy to keep as the young tubers. Of course my hill was protected from the rain, and the dirt was thick enough to keep out frost. Lowest temperature this winter was 16 F. The sap had never left these plants, and most of them had strong new sprouts and roots to them, so that they are ready to go right to growing in the pots where they were placed. And, by the way, I am debtor to you for the idea of starting them in pots. My pots are heavy manilla paper sacks, which I expect to peel off and set the rooted plant, dirt and all, in the open ground about May 1.

Pell City, Ala., March 17. BAYS D. CARTER.

My good friend, we are exceedingly obliged to you. The above demonstrates that, with a little care and pains, the dasheen may be kept with little trouble so it will be available for food every day in the year; and, more than that, tubers kept in this way will start out with wonderful vigor, and in good soil ought to make plants as high as your head before frost comes again. I am pleased, also, to note that you have succeeded already in getting corms weighing close to two pounds, and that even the corms went through the winter without any loss.

Just now one of my good friends said in one of his kind letters he hoped I would let up a little in regard to dasheen. All right. The dasheens are planted and growing finely, and we will now talk about sesame for people and chickens. Another of God's unnoticed gifts.

"SESAME"—THE NEW FOOD PLANT; SEE PAGE 239, MARCH 15.

After getting the seeds from South Africa they were planted at once, but for some reason none came up. Later I found the plant already growing in Florida, and succeeded in getting a few seeds which were planted and came up very promptly. When I left Florida, about the last day of April, they were up so as to show the second leaves. Here is something from the West Indies in regard to the same plant:

Permit me to say to Mr. Root that I grow sesame, and have been selling quite a lot by mail to nearly all the Southern States—mostly in ounce packets at 10 cents. The sale was brought about by a letter from myself to the *Southern Ruralist* of Feb. 15, describing the seed and some of its uses. I am out of seed now, except for planting, but will be ready with more in about four months.

JOHN M. BREWER.

Columbia, Isle of Pines, West Indies, April 20.

Later.—After the above was dictated I ran across the following, which I extract from the *Florida Grower*; and from what I know of it I have no doubt that these little seeds will be the nicest things in the world

for little chicks. Some years ago we purchased some French bread—I think they called it French—that was very highly recommended, and all over the glossy surface of this bread were some little seeds that gave the bread a peculiar and (to me) very enticing flavor. From what follows below I think that, without question, these little seeds were sesame. Now read the following:

Of all known plants the magicians have selected one, the sesame, or benni, as their own. Presto, change! Open, sesame! These words are known wherever the magician plays his art. It is simply a transformation; he uses the first incantation; but if from some closed or hidden source is to proceed some marvel, as a white rabbit from your hat, or a twenty-dollar gold coin from your empty pocket, in all such cases he says, "Open, sesame!" But how many of us know why he says so?

The sesame is an oriental plant. India largely supplies Europe with the seed, which go mostly when compressed into sesame oil. China exports thousands of tons to America, which all Germans and Greeks especially are fond of, whether eaten like peanut or put into bread, cake, candies, or sausages. The seeds are small, somewhat like tomato seed, and are rich, nutty, and oily in their taste. Each plant, about five feet high and widely branched, produces 25,000 to 30,000 seeds. The leaves have medical virtues, and, though not disagreeable to the taste, the plant is never eaten by cattle.

The plant is the greatest known attractor and feeder of birds in fields, parks, and game preserves. The game preserves about my home here at Augusta, Ga., have had finest results from sesame. It is equally good about the home for birds, poultry, or little chicks. Doves and quail are exceedingly fond of it, and it serves as a great attraction for them. It is an annual—grows anywhere. When regularly planted in fields, plant 3 1/2 x 2 feet, 5 pounds to the acre, in June, and it ripens in about 100 days—ripens as far north as Kansas or Missouri. One acre makes from 1000 to 1500 pounds of seed.

The five or six branches of the plant are loaded with pods, and there are fifty or more seed to the pod, which lie over and on top of one another. These pods are about 1 1/4 inches long, and have three or four seed-chambers.

The magician comes in just here. The ripened pods have a queer, quite magical way of suddenly bursting and sending out in all directions showers of seed. The force of the explosion sends this mist of seed to quite a good distance. In the dry August and September days these explosions are incessant. One who sees them well understands why the world's magicians have so long and so exclusively claimed this plant as their own.

N. L. WILLET.

Editor's Note.—*Sesamum Indicum*, to which our correspondent refers, has been extensively cultivated in Asia and Africa since times immemorial. Sesame oil, extracted from the seed, known in India as "til," is used for the same purposes as olive oil, and, although less widely known by name, is commercially a much more important oil. The leaves are used medicinally in cases of dysentery and diarrhea in children, and the soot obtained from the burning oil constituted one of the ingredients in India or China ink. Large quantities of oil and seed are imported into Europe from Asia for the manufacture of soap and adulteration of olive oil. This plant might be cultivated with advantage in South Florida.

If the sesame makes as interesting a breakfast food as is described it ought to be very useful to Florida folks, and I am quite anxious for the summer rains to get here so that I may plant the seed for which I have sent. Judging from the descrip-

tion it must be that the old time "benny" or "bene" as some spell it, is a relative at least of this sesame which is now being started on its popular way. The old benny is described as dark-colored, making its pods only at the tips of branches, while the present sesame species carries pods in long rows along the branch and main stalk; and the seed, which is parched and used as a cereal, is nearly white. It is a rainy-season crop, moreover, and said to grow quite easily on soil that is not especially rich. Besides being used for cereal the parched seeds are ground at

home in the kitchen grinder, and used in pancakes. If there is any thing as easily made as this is reported, and available for two such uses, it will surely make its way in Florida as soon as tried out. I am sending also for enough to see what the flavor may be. The sesame which I have seen sprinkled over bread baked by Syrian bakers in the New York quarters lends a fine flavor to their crust. These foreigners may use it also in some way corresponding to our cereal; but so far as my acquaintance with them goes they are not strong on so-called breakfast foods.

TEMPERANCE

THE "OPENING CHASM."

A correspondent of the Medina *Gazette* writes about the "chasm" that separates the Progressive and Republican parties, to which Editor Rowe replies as below:

There is another "chasm" opening. It is a single issue that is going to be presented at the bar of public opinion in Ohio this year that will make this "chasm" one so wide that there will be no bridging it if it separates two parties. It is going to make a "chasm" through the whole length and breadth of this nation before another presidential year has come around. It is the proposition for the absolute extinction of the American saloon—the wiping-out of the nation's greatest curse by the national prohibition of it. Business as well as the church, the home, and the individual are rising in their wrath and might against it. It has got to go—and the Progressive party of Ohio is this year going to declare absolutely for its extinction—for wiping it off the face of the earth—without compromise or paltering.

Won't it make a "chasm"! Will either of the old parties dare line up on the issue? Will they do any thing but evade and shuffle and compromise with it as they have always done?

Amen to the above sentiment. It is the best illustration of boiled-down "common sense" I have seen in a long while. Once more I ask, "Will the old parties *dare* line up?"

"OUR CUSTOMERS ARE YOUR PROSPECTIVE PATIENTS."

Please read the following, which we clip from the Cleveland *Plain Dealer*:

William H. Anderson, president of the New York Anti-saloon League, placed in the record a letter addressed to a whisky "cure" concern at Dwight, Ill., and signed by a distillers' distributing company at Kansas City.

"Our customers are your prospective patients," it read. "We can put on your desk a mailing list of over 50,000 individual consumers of liquor. Each individual on the list is a regular user of liquor. The list of names is new, live, and active. We will furnish this list in quantities at the prices listed below."

A scale then was given.

Wayne B. Wheeler, superintendent of the Anti-saloon League of Ohio, declared that the fight against the liquor traffic had been finally brought "to the last stand of the liquor interests, the barricade of the national protection of the traffic."

What you do think of the above for "cheek"? These liquor-dealers not only offer to *sell* the names of their patrons, but

coolly own up that their customers will sooner or later wind up in a "Keeley cure" institution; and, by the way, is that not also rather a "fling" at the whole "cure" business? Our older readers will remember that when the Keeley remedy first came out I strongly insisted that the only cure was the gospel of Christ Jesus.

"GOD'S KINGDOM COMING."

We clip the following from the *American Issue* of April 18:

Last week was certainly a nightmare to John Barleycorn. It must have reminded him of the effect he has on his victims. The week started with the announcement of the Chicago *Record-Herald* that it would not longer accept liquor advertisements because it did not care to commend that which society regards as a menace. Then came the order of Secretary Daniels prohibiting the use of intoxicants in naval stations, in navy yards, or on board Uncle Sam's ships. This was followed by the abolition of one thousand saloons by the voters of Illinois and the cleaning-up of wet territory in Michigan, Minnesota, and Nebraska. All this did not tend to boost brewery stock. Before the week was half over, the common stock of the Hoster-Columbus brewery, the biggest concern of its kind in Central Ohio, was down to one-fourth of a cent on the dollar, while for its preferred stock but five cents on the dollar was bid.

LONDON TEMPERANCE HOSPITAL; A FAMOUS NON-ALCOHOLIC EXPERIMENT.

Mr. Root:—In GLEANINGS for Dec. 15, page 914, you speak of a hospital in England which has not used liquors for 40 years. Now, that is a clincher. Please write me the name of the hospital, and where located. I have never seen the *Union Signal*.

Bergville, Minn., Jan. 10. A. B. WHITE.

The above letter was submitted to the *Union Signal*, and they reply as follows:

Mr. A. I. Root:—Replying to your letter of January 16, inquiring as to the full address of the hospital referred to in the article in the *Signal* of Nov. 6, we beg to say the only address we know is The London Temperance Hospital. We are sending to Mr. White a marked copy of the Nov. 6th paper. If you or he desires further information in regard to the matter we would advise you to correspond with Mr. Chas. E. Bailey, 1 Stanhope Road, Wheatley, Doncaster, England. He has been a contributor to *The Union Signal* for a number of years, and we have always found him accurate in his statements. We feel sure that what he says in the article is correct.

Evanston, Ill., Jan. 21.

JULIA F. DEAN.

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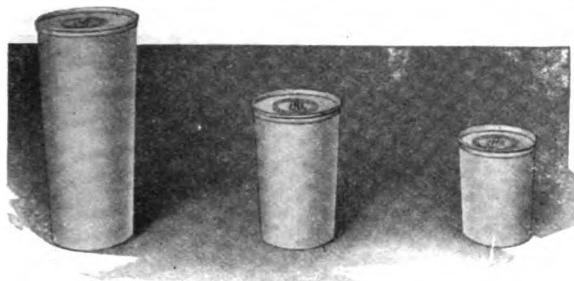
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Taylor's 1914 Three-banded ITALIAN QUEENS

Now ready to mail: 20 years' careful breeding for the best honey-gatherers. None better. Prolific, and honey-getters. We fill all orders promptly. Untested, \$1.00 each, or \$10.00 a dozen. Tested, \$1.25 each, or \$12.00 a dozen. Select tested, \$1.50 each or \$15.00 a dozen. Breeders, the best, \$5.00 each. Send all orders to

J. W. TAYLOR & SON, Beeville, Bee Co., Texas

QUEENS!

Quirin's Improved Superior Italian Bees and Queens. . . They are Northern Bred and are Hardy. . . Over 20 Years a Breeder.

	Before July 1st			After July 1st		
	1	6	12	1	6	12
Select untested . . .	1.00	5.00	9.00	.75	4.00	7.00
Tested	1.50	8.00	15.00	1.00	5.00	9.00
Select tested	2.00	10.00	18.00	1.50	8.00	15.00
8-comb nuclei . . .	2.50	14.00	25.00	2.25	15.00	28.00
8-comb nuclei . . .	3.50	20.00	35.00	3.25	18.00	31.00
8-frame colony . . .	6.00	30.00	55.00	5.00	25.00	45.00
10-frame colony . . .	7.50	38.00	65.00	6.50	32.00	52.00
1-9 lb. pkg. bees . .	1.50	7.00	12.00	1.00	5.00	8.00
1-lb. pkg. bees . .	2.00	10.00	18.00	1.50	8.00	12.00

BREEDERS—the cream selected from our entire stock of outyards; nothing better. These breeders \$5.00 each.

Can furnish bees on Danzenbaker and L. or Hoffman frames. Do not write for lower prices even if you want 1000 queens or 100 colonies. Price is already low, considering the quality of our stock and prompt service.

Above price on bees by pound, nuclei, and colonies, does not include queen. You are to select such queen as you wish with the bees, and add the price.

No bees by pound sent out till first of June. Also nuclei and colonies, if wanted before June 1st, add 25 per cent to price in table.

Breeders, select tested, and tested queens can be sent out as early as weather will permit.

Send for testimonials. Orders booked now.

H. G. Quirin - the - Queen - Breeder
BELLEVUE, OHIO

INCREASE Your SALES

... By a Liberal Distribution of Our Booklet ...

THE USE OF HONEY IN COOKING

The 1913 edition is ready for distribution, and may be had in quantities at reasonable rates. The back cover page affords space for a display advertisement. At this booklet contains no advertising whatever, it can be employed with telling effect. Better order your supply early. Sample and prices in quantities on application.

Fifty-eight pages: one hundred and twenty-two valuable recipes in which honey is used. Just the book for every household. A two-cent stamp will bring a copy.

Address the Publishers

THE A. I. ROOT COMPANY, MEDINA, OHIO

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GOLDEN ITALIAN Queens

Rearred from straight five-band mothers, mated with select golden drones, $\frac{3}{4}$ miles from three-band apriary. These queens are large, vigorous, and prolific; the bees gentle and hustlers, and are noted throughout the U. S. as a disease-resisting strain. Purity of mating, safe arrival, and satisfaction guaranteed.

QUEENS	May 1st to June 1st			June 1st to July 1st			July 1st to Nov. 1st		
	1	6	12	1	6	12	1	6	12
Untested.....	\$ 1.25	\$ 6.50	\$11.50	\$ 1.00	\$ 5.00	\$ 9.00	\$.75	\$ 4.00	\$ 7.50
Select Untested.....	1.50	7.50	18.50	1.25	6.50	12.00	1.00	5.00	9.00
Tested.....	2.00	10.50	21.50	1.75	9.00	17.00	1.50	8.00	15.00
Select Tested.....	2.75	15.00	27.00	2.50	15.50	25.00	2.00	10.00	18.00

Breeders, \$6.00 to \$10.00.

Queens for export will be carefully packed in long-distance cages, but safe arrival is not guaranteed.

BEN G. DAVIS, SPRING HILL, TENNESSEE

W. H. LAWS

is prepared to take care of all your queen orders the coming season.

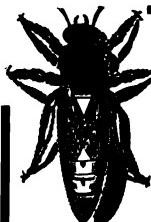
Twenty-six years of careful breeding places Laws' queens above the usual standard.

My bees, in my own and in the hands of others, have taken first premiums at the leading fairs all over the United States; and, in the hands of single individuals, have gathered over a car of honey in one season.

Tested queens ready now. Each, \$1; 12 for \$10.

Untested, after April 15, breeding queens, about fifty of the finest ready at any time; each, \$6.00.

W. H. LAWS, Beeville, Bee Co., Texas



THREE-BANDED ITALIAN QUEENS

Rearred from our best stock in strong colonies and mated to select drones of superior honey-gathering strains. Bees that are industrious, hardy, and gentle; good red-clover workers, and good winterers. Ready May 20.

Untested, \$1.00 each; six, \$5.50; twelve, \$10.00.

Tested, \$1.50 each.

Prices for larger quantities furnished on application. Prompt service, purity of mating, safe arrival in the U. S. or Canada, and satisfaction guaranteed.

H. C. SHORT, WINCHESTER, OHIO

Archdekin's FINE ITALIAN QUEENS

THREE BANDED

Bred for Persistent Profitable Production of Honey. Prolific, hardy, gentle. The bee for pleasure or profit. One customer says, "Your queen soon had her ten frames running over with bees that are hustlers." Cells built in strong two-story colonies, and mated by best-known methods. No disease. Satisfaction guaranteed. Orders filled promptly. Ready May 20. Untested, \$1.00 each; six for \$5.50; dozen, \$10.00. Select tested, \$2.00 each.

J. F. Archdekin, Rt. 7, St. Joseph, Mo.

Marchant's Island Bred Queens

Bred from selected mothers, and mated to isolated drones of a different strain. My aim is quality and not quantity. So if you want any of these choice properly mated three-banded Italian queens order now or you may not get them as I am going to rear only a limited number. No disease, and your money back if not satisfied. The A. I. Root Co. use my queens, which is proof of their quality.

No need to write for lower prices.

Reference, The American Exchange Bank of this city.

Prices—Untested, single, \$1.50; 6 for \$6.00; 12 for \$10.00; in lots of 25 or more, 75 cts. each. Select tested, \$3.00. Breeders, \$5.00 and \$10.00.

A. B. Marchant, . . . Apalachicola, Florida

MILLER'S STRAIN ITALIAN QUEENS

By RETURN mail after June 5th to 10th, or money refunded. Bred from best RED-CLOVER strains in the U. S. in full colonies from my SUPERIOR BREEDERS. Northern bred for business; long-tongued; leather-colored or three-banded; gentle; winter well; hustlers; not inclined to swarm; roll honey in. One untested, \$1.00; 6, \$5.00; 12, \$9.00. One select untested, \$1.25; 6, \$6.00; 12, \$11.00. A specialist of 17 years' experience. . . Safe arrival and satisfaction guaranteed.

I. F. MILLER, BROOKVILLE, PENNSYLVANIA



Get Your QUEENS

Direct from Italy

May to September.—Tested, \$2.00; Champion Layers, \$4.00. Dead queens replaced if box is returned unopened. Discount to dealers or for quantities. Beautiful unsolicited testimonials. Honest dealing. For further particulars write to

MALAN BROTHERS

Queen-breeders
Lucerne, San Giavanna, Italy

Western Queens

Three-band Long-tongued Italians

Our breeders won first prize at the Idaho State and county fairs last fall, and all beekeepers who saw them commended them very highly. They have been bred for production, and will not fail to make a record for you. We guarantee satisfaction, or money back.

Prices: Untested, 90c; 6, \$4.80; 12, \$9.00. Tested, \$1.35; 6,

\$6.50; 12, \$12.00. Select untested, \$1.50. Tested, \$1.75.

Prices for nuclei on application. Circular free.

GLEN L. EVANS, GREENLEAF, IDAHO

Breeder and Importer of Fine Queens

The Old Original 1853 Edition of Langstroth Reprinted

Now Ready for Distribution

One of the Most Charmingly Written and Entertaining Books that was Ever Published

It so stirred A. I. Root in the early days that he wrote:

What a gold-mine that book seemed to me! . . .
Never was romance so enticing—not even Robinson Crusoe; and, best of all, right at my own home I could live out and verify all the wonderful things told therein.

Here is what Others say:

This will preserve the original for future generations.
G. M. DOOLITTLE.

Marietta, N. Y., April 16.

I am much pleased with the reprint which has come to hand.

Amherst, Mass., April 15.

B. N. GATES.

It is very interesting, not only from a sentimental but from a practical standpoint.

Guelph, Can., April 21.

MORLEY PETTIT.

The dear old man was one of God's very own; and to have this reminder of him on my book-shelf will give me much pleasure.

Sacramento, Cal., April 18.

A. J. COOK,

State Commissioner of Horticulture.

It seems good to read again this charming work. It must ever remain to the American beekeeper a classic, both instructive and fascinating.

Middlebury, Vt., April 15.

J. E. CRANE.

It is well to have Langstroth reprinted; and if all would read it, many would be saved from going over well-thrashed straw. I have several of the early editions, and am glad to add this to them.

ARTHUR C. MILLER.

Providence, R. I., April 20.

I have the copy of the reprint of the 1853 Langstroth. I have long admired the writings of Langstroth, and had read his original edition with great interest. It is especially interesting in that he discusses some of the points that are annually "discovered" by others who are unfamiliar with the literature on bees. I feel that it will benefit American beekeepers to become familiar with this book, and trust that it will have a wide distribution. The book is a classic, and should be known to all good beekeepers.

E. F. PHILLIPS.

Washington, D. C., April 16.

I am much pleased to get the reprint of Langstroth, and I thank you heartily for the same. I have not yet had a chance to look it through, but did look into it enough to recognize the dear old book. It was the very first thing I ever read on bees, and I read it through the first night—the night of the day I captured my first swarm. At least I read it till I dared not sit up any longer lest my father arrive on the scene with a slipper. I did not dare look at the clock when I finally did go to bed. Yes, I got the fever bad.

ALLEN LATHAM.

Norwichtown, Ct., April 30.

While some of our readers may, perhaps, feel that this work would be out of date, the fact is,

FATHER LANGSTROTH WAS 60 YEARS AHEAD OF HIS TIME.

So much so that he revolutionized beekeeping throughout the world.

The book that helped to bring about this remarkable revolution is well worth reading to-day. It is full of valuable tricks of the trade.

PRICE: 400 pages, bound in cloth, \$1.00 postpaid; clubbed with GLEANINGS, \$1.50; with A B C and X Y Z of Bee Culture, \$2.50; with Dadant's Revised Langstroth, \$1.85.

The A. I. Root Company, Medina, Ohio

Classified Advertisements

Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the Classified Columns or we will not be responsible for errors.

HONEY AND WAX FOR SALE

FOR SALE.—Finest quality buckwheat honey in cans and kegs. Clover honey all sold.
C. J. BALDRIDGE, Kendalia, N. Y.

FOR SALE.—No. 1 white comb, \$3.00 per case; fancy, \$3.25; 24 Danz. sections to case, six cases to carrier.
WILEY A. LATSHAW, Carlisle, Ind.

HONEY AND WAX WANTED

WANTED.—Comb, extracted honey, and beeswax.
R. A. BURNETT & CO., 173 So. Water St., Chicago.

WANTED.—Comb honey and beeswax. State what you have and price.
J. E. HARRIS, Morristown, Tenn.

WANTED.—Honey, extracted and comb. Will buy or handle on commission. Beeswax—will pay highest price.
HILPRETH & SEGELKEN, New York, N. Y.

FOR SALE

FOR SALE.—A full line of Root's goods at Root's prices.
A. L. HEALY, Mayaguez, Porto Rico.

FOR SALE.—Full line of Root's goods at factory prices.
E. M. DUNKEL, Osceola Mills, Pa.

FOR SALE.—Better hives for less money. Beekeepers' supplies and standard-bred Italian bees. Write for catalog.
A. E. BURDICK, Sunnyside, Wash.

FOR SALE.—Root's goods at factory prices. Fresh stock and prompt accurate service. Let's get acquainted.
L. W. CROVATT, box 134, Savannah, Ga.

FOR SALE.—Empty second-hand cans, two cans to the case; good as new; 25 cts. per case.
C. H. W. WEBER & CO., Cincinnati, Ohio.

Beekeepers, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap.
WHITE MFG. CO., Greenville, Texas.

Thick-top L. frames, f. o. b. Blountstown, at \$2.00 per 100, in flat; \$18.00 per 1000. Sample by mail, 5 cts.
TUCKER & BAILEY, Blountstown, Fla.

FOR SALE.—100 Heddon hives and appliances to run 100 colonies. Bargain to clear out. Write soon.
MRS. R. L. GRAY, Rt. 4, Lapeer, Mich.

We are among the largest growers of alsike clover in this country, and offer good clean seed. Bushel, \$11.00; half bushel, \$5.75; peck, \$3.00.
C. J. BALDRIDGE, Homestead Farm, Kendalia, N. Y.

The A. I. Root Co.'s Canadian House, Dadant foundation, bees, queens, honey, wax, poultry supplies, seeds. Write for a catalog.
THE CHAS. E. HOPPER CO., 185 Wright Ave., Toronto, Ontario.

FOR SALE.—Smokers and feeders slightly damaged by flood, at one-half catalog price. Bargains. Mention what you want and enclose remittance. We reserve right to substitute.
E. W. PEIRCE, Zanesville, Ohio.

"Root" bee supplies, "American" honey-cans, and "Weed Process" foundation exchanged for beeswax and honey. Cash prices on request.
SUPERIOR HONEY CO., Ogden, Utah.
(Branch at Idaho Falls, Idaho.)

FOR SALE.—150 10-frame dovetailed hives nearly new, \$1.20 each with new frames. Better order those Peerless hives to-day.

L. F. HOWDEN MFG. CO., Fillmore, N. Y.

FOR SALE.—Eight-frame Danzenbaker supers, one pair scales, Root section press, 2-ton motor truck, wax press, 2-frame extractor, sample mailing cases, empty 60-lb. cans, power washing machine.

MRS. F. B. CAVANAGH, Hebron, Ind.

I thank the beekeepers for the interest shown in my double-section super described in March 15 GLEANINGS. I received an interesting letter from Hawaii. Will give all a chance to try it at small cost. Will send the 10-frame size, all set up, by parcel post, postage paid up to and including the 4th zone, for \$1.10; longer distances, add extra postage. You will try it eventually if you are an up-to-date beekeeper. ELMER GEESMAN, Hamburg, N.Y.

WANTS AND EXCHANGES

FOR SALE OR TRADE.—Package 500 two-beeway sections, unopened; also comb-honey fixtures.
A. LYNN STEPHENSON, Brownsville, Tex.

WANTED.—To sell untested queens from my superior clover-strain Italians in quantities.
I. F. MILLER, Brookville, Pa.

WANTED.—Best offer on thirty 12-section safety cases of No. 1 to fancy clover-heartsease honey placed in our hands for disposal. Color light as average clover.
E. W. PEIRCE, Zanesville, Ohio.

FOR SALE.—Complete advertising course, \$15. Cost \$115. Secured me position as adv. manager of a daily. Or will exchange for 8-fr. hives or plain section supers.
N. GUTE, Ossowo, Mich.

WANTED.—Copies of GLEANINGS IN BEE CULTURE for January 1st, February 1st, and March 1st, 1914. Soiled or torn copies not acceptable. Will any subscriber who has a copy for any of the dates mentioned, which he is willing to supply, please notify THE A. I. ROOT COMPANY, Medina, Ohio?

WANTED.—To furnish every beekeeper within 500 miles of Boise, Idaho, with the best and cheapest bee supplies on the market, *quality considered*. Send me your order or a list of your requirements for 1914. Our catalog and price list will be mailed to you free. Order early and get the discounts.
C. E. SHEIVER, Boise, Idaho.

REAL ESTATE

Virginia fertile farms, \$15 an acre up. Easy payments. Send names of two friends interested in Virginia, and receive our beautiful magazine one year free.
F. H. LABAUME, Agr'l Agt. Norfolk & Western Ry., Room 246, N. & W. Bldg., Roanoke, Va.

BEES AND QUEENS

Bees by the pound, \$1.25; queens, \$1.00.
J. B. MARSHALL, Big Bend, La.

Phelps' Golden Italian Queens will please you.
C. W. PHELPS & SON, 3 Wilcox St., Binghamton, N. Y.

Pure Italian bees or their hybrids, in L. 10 frames, wired, full foundation, 1 or 100.
JOS. WALRATH, Antioch, Cal.

Golden Italian queens, good as any. Tested, \$1.00; select tested, \$1.25; untested, 70 cts.; dozen, \$8.00.
D. T. GASTER, Rt. 2, Randleman, N. C.

Connecticut queens, 3-banded Italians only; large and vigorous; ready May 15. Price list.
W. K. ROCKWELL, Bloomfield, Ct.

FOR SALE.—18 colonies bees, \$4.50 each. Second-hand extractor wanted. H. W. FULMER, Andalusia, Pa.

Phelps' Golden Italian Bees are hustlers. C. W. PHELPS & SON, 3 Wilcox St., Binghamton, N. Y.

FOR SALE.—A few good swarms of Italian bees. No disease. Reasonable.

E. R. THOMAS, Nashotah, Wis.

BEES FOR SALE.—100 colonies, L. frames; boat for moving to mangrove, and automobile, very cheap. 34878 Box 163, Stuart, Fla.

Try my bright queens. Select untested, \$1.00; \$9.00 per dozen. Safe arrival and satisfaction guaranteed. M. BATES, Rt. 4, Greenville, Ala.

Leather-colored Italian queens June 15. Circular free. No foul brood. One, 85 cts.; 6, \$4.50; dozen, \$8.00. D. G. LITTLE, Hartley, Iowa.

Three-frame nucleus for sale with queen, \$2.50; 3 or more, \$2.25, on Langstroth frames; commence to ship about May 15. W. H. STANLEY, Dixon, Ill.

Three-band Italian queens. Tested, \$1.00; untested, 75 cts. Ready May 15.

S. CLICK, Mt. Jackson, Va.

FOR SALE.—40 colonies Italian bees in ten-frame Langstroth hives, wired Hoffman frames. No disease. J. B. RATCLIFFE, Amboy, Minn.

Queens by return mail, three-band untested Italians, good as can be produced. No disease; 75 cts. each. W. D. ACHORD, Fitzpatrick, Ala.

FOR SALE.—150 colonies tested Italian bees; honey-house, tent-house, and complete extracting equipment. H. E. DIKE, Calabasas, Cal.

Queens by return mail, or your money back. See larger ad. Write for free booklet, "How to Transfer, Get Honey, and Increase."

J. M. GINGERICH, Arthur, Ill.

Italian queens. Warranted, 75 cts. each; tested, \$1.25; choice breeding queens, \$2.00 to \$5.00 each, by return mail. STANLEY & FINCH, 1451 Ogden Ave., Chicago, Ill.

Untested queens, 75 cts. each; dozen, \$7.50; nuclei, \$1.25 per frame. Young bees by the pound, \$1.50; ½ lb., \$1.00. Full colonies, 8-frame, \$6.50; 10-frame, \$7.50. D. D. STOVER, Mayhew, Miss.

FOR SALE.—Golden Italian queens that produce golden bees; for gentleness and honey-gathering they are equal to any. Every queen guaranteed. Price \$1.00; 6 for \$5.00. W. M. S. BARNETT, Barnett's, Va.

QUEENS OF QUALITY.—Three-band, leather color, select untested, 75 cts. each; \$8.00 per dozen. Satisfaction guaranteed. Circular free.

J. I. BANKS, Liberty, Tenn.

Phelps' Golden Italian Queens combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; six, \$5.00; tested, \$3.00; breeders, \$5.00 and \$10.00. C. W. PHELPS & SON, 3 Wilcox St., Binghamton, N. Y.

FOR SALE.—Italian bees, 1 lb. with queen, \$2.25; 1 frame with queen, \$2.00. Queens, 75 cts. each. Safe delivery guaranteed; 30-page catalog with beginner's outfit, for stamp. THE DERBY TAYLOR CO., Newark, N. Y. (formerly Lyons).

Queens and bees for sale.—See our large advertisement elsewhere in this journal, and read The A. I. Root Co. letter to us regarding our queens. Write at once for large bee and queen circular.

THE PENN CO., Penn, Miss.

California Italian queens, three-banded and Goldens; also bees by the pound for June and later delivery. Booked full till June 1. Circular and price list free. Write J. E. WING, 155 Schiele Ave., San Jose, Cal.

FOR SALE.—Fine Italian queens. See my large ad. in this issue.

J. F. ARCHDEKKIN, Rt. 7, St. Joseph, Mo.

Golden Italian queens, Northern bred. Have wintered perfectly. Untested, 1, \$1.00; dozen, \$10.00. J. STUART SCOFIELD, Kirkwood, N. Y.

Golden yellow Italian queens my specialty. Untested, \$1.00; tested, \$1.50. Ready April 1. Safe arrival guaranteed. E. A. SIMMONS, Greenville, Ala.

Keystone State Golden Italian Queens will please you for honey-gathering; healthy brood and nice gentle bees. Untested, \$1.00; dozen, \$9.00.

WILL H. CARL, Elysbury, Pa.

My queens are bred from imported mother. For gentleness and honey-gathering they are unexcelled. Untested, 1, 75 cts.; 6, \$4.25; 12, \$8.00. Safe arrival. Address W. J. FOREHAND, Ft. Deposit, Ala.

Golden Italian queens that produce golden bees, the brightest kind, gentle, and as good honey-gatherers as can be found. Each, \$1.00; six, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.

J. B. BROCKWELL, Barnett's, Va.

Golden Untested Italian Queens, \$1.00; six for \$5.00. These bees are gentle, prolific, energetic, and pretty. Under date of May 2 an old customer—Chas. Stewart, Johnstown, N. Y., State Bee Inspector—writes, "Received in fine condition 10 queens." Ready to mail. J. B. CASE, Port Orange, Fla.

Golden and three-band Italian and Carniolan queens ready to ship after April 1. Tested, \$1.00; 3 to 6, 95 cts. each; 6 to 12 or more, 90 cts. each. Untested, 75 cts. each; 8 to 6, 70 cts.; 6 or more, 65 cts. each. Bees, per lb., \$1.50; nuclei, per frame, \$1.50. C. B. BANKSTON, Buffalo, Leon Co., Texas.

FOR SALE.—40 colonies bees in 8 and 10 frame hives; comb and extracted honey equipment; total equipment for about 100 colonies, 2-fr. Cowan extractor, queen-rearing outfit, Alexander feeders, and numerous other things, \$300. Address MARTIN S. BACKER, Fulton, Mo.

They have been bred for three points—prolificness, gentleness, and honey-gathering qualities. Select untested, each, 75 cts.; six, \$4.25; 12, \$8.25; 50, \$32.50; 100, \$60.00. Tested, \$1.50; select tested, \$2.00; three-banded breeders, \$4.00; golden breeders, \$5.00. GARDEN CITY APIARY Co., Rt. 3, Box 86, San Jose, Cal.

Famous North Carolina bred Italian queens for sale—(Red-clover three-banders); honey-gatherers, good as the best. Strictly reared from Geo. B. Howe's best breeders, mated with Root's, Moore's, Davis' select drones; bees that get the honey; free of disease. Untested, 1, 75 cts.; dozen, \$7.50. Select untested, 1, \$1.00; dozen, \$9.00. Tested, 1, \$1.25. Select tested, \$1.50. Extra select tested, \$2.00. Breeders, \$3.00 to \$5.00.

H. B. MURRAY, Liberty, N. C.

FOR SALE.—Early swarms at fall prices; ½ lb. bees, \$1.00; 1 lb. bees, \$1.50. Add price of queen if wanted. Untested three-band Italian queen, 75 cts. each; tested Italian queens, \$1.25 each. These are bred from best honey-gathering strain. No disease. Safe arrival and satisfaction guaranteed. This is undoubtedly the best way for Northern honey-producers to increase and improve their stock. Delivery begins about April 5. Capacity, 40 swarms per day.

W. D. ACHORD, Fitzpatrick, Ala.

BEES AND QUEENS.—Queens bred from Doolittle's best stock, untested, 60 cts. each; \$6.60 per dozen; \$50 per 100. Same stock of year-old queens removed from our colonies to prevent swarming, 50 cts. each; \$5.40 per dozen; \$40 per 100. Delivery guaranteed. Nuclei, two-frame, \$1.50; three-frame, \$2.00. Add price of above queens wanted. We have a rare bargain of apiary of several hundred colonies of bees for sale on easy terms. Particulars on request.

SPENCER APIARIES CO., Nordhoff, Cal.

Try Forehand's three-band Italian queens. They are raised from imported stock, unexcelled for honey and gentleness. One untested, 75 cts.; 6, \$4.25; 12, \$8.00. Send me your order; and if not satisfied I will return money. Safe arrival.

N. FOREHAND, Rt. 2, Brewton, Ala.

FOR SALE.—Swarms of young Italian bees in packages. Replace winter losses and strengthen weak colonies with healthy young bees; $\frac{1}{2}$ -lb. packages, 90 cts. each; 1-lb. packages, \$1.25 each; 2-lb. packages, \$2.45 each. Young untested Italian queens, the three-banded hustlers, 75 cts. each. We guarantee safe arrival. No disease. For large quantities write for wholesale prices.

BROWN & BERRY, Hayneville, Ala.

FOR SALE.—Three-banded Italian queens, from the best honey-gathering strains, that are hardy and gentle. Untested queens, 75 cts.; 6, \$4.25; 12, \$8.00; tested queens, \$1.25; 6, \$7.00; 12, \$12.00. Selected queens, add 25 cts. each to above prices. Breeding queens, \$8.00 to \$5.00 each. For queens in large quantities, write for prices and circulars.

ROBERT B. SPICER, Wharton, N. J.

Golden and three-banded Italians, ready March 1.

Three-banded Italian queens: Before July 1, untested, 1, \$1.00; 8, \$5.00; 12, \$9.00; select untested, \$1.25; 6, \$6.25; 12, \$11.00. After July 1, untested, 1, 75 cts.; 6, \$4.00; 12, \$7.00; select untested, 1, \$1.00; 8, \$5.00; 12, \$8.50. One-frame nucleus, 75 cts.; two-frame, \$1.50; three-frame, \$2.25. To each nucleus add price of queen. Our queens are reared in locality where there has never been disease, and reared from strong vigorous colonies. The apriary is under most competent supervision. Safe arrival and satisfaction guaranteed.

HORNER QUEEN & BEE CO., Ltd., Youngsville, Pa.

Guaranteed purely mated 3-band Italian queens, J. E. Hand strain, bred for gentle, prolific, honey-gathering, wintering, and long life. State Inspector's certificate. Queens by return mail, or your money back. Before July 1, select untested, one, \$1; 6, \$5; tested, one, \$1.25; 6, \$7; select tested, one, \$1.75; 6, \$9. Breeders, \$5. After July 1, select untested, one, 75 cts.; 6, \$4; 12, \$7; tested, one, \$1; 6, \$5; 12, \$9. Select tested, one, \$1.25; 6, \$7; 12, \$13. Breeders, \$4; 10 per cent discount on 30 days' advance orders on all queens to be mailed after June 20. Safe delivery guaranteed in United States and Canada. Reference, First National Bank.

J. M. GINGERICH, Arthur, Ill.

POULTRY

FOR SALE.—Sicilian Buttercup eggs for hatching, \$1.50 per 15 eggs.

L. S. GEIGGS, 711 Avon St., Flint, Mich.

The Rex Gape-worm Extractors are a never-failing cure for gapes in young chickens. Write for circular. J. S. KLOCK, Box 301, Herndon, Pa.

Sicilian Buttercups. One utility flock. Eggs, \$1.00 per 15; unsatisfactory hatchets replaced at half price.

WALTER M. ADEMA, Berlin, Mich.

Eggs.—20 for \$1.00; leading varieties prize poultry, pigeons, hares, etc. Booklet free. Large illustrated catalog, 10 cts. F. G. WILE, Telford, Pa.

S. C. White Minorcas, \$3.00 per 15; R. C. Buff Leghorns, S. C. Brown Leghorns, and Partridge Wyandottes, \$1.00 per 15.

HILLCREST FARM, Winchester, Ind.

Royal Blue Orpingtons, Nicholson strain. Blue Andalusians; also pure-white Indian Runner ducks, blue-ribbon winners. Eggs for sale. Write me for special prices and description.

H. R. ROHE, Buckhannon, W. V.

INDIAN RUNNER DUCKS

Runner Duck Eggs.—Fawn, white-egg strain, \$1 per 12 eggs. Single-comb R. I. Red eggs, and day-old chicks. Tompkins strain. SARAH WIDRIG, Rt. 29, Burt, N. Y.

Runner and Pekin Ducklings and hatching eggs. White-egg strain, Blue-ribbon stock. Also drakes. Catalog for stamp.

THE DEBRY TAYLOR CO., Newark, N. Y.

Eggs from a heavy-laying strain of White Indian Runner ducks, \$2 per 18, \$10 per 100. In the hottest competition the past winter I took every blue ribbon wherever shown. I guarantee a pure-white-egg strain. WM. DROMMS, Rt. 2, Schenectady, N. Y.

MISCELLANEOUS

FOR SALE.—Pheasants and eggs.

S. V. REEVES, Haddonfield, N. J.

HELP WANTED

WANTED.—Man (married preferred) experienced in queen-raising; employment by the year on a salary and percentage.

OGDEN BEE AND HONEY CO., Ogden, Utah.

WANTED.—Young man with some Southern experience, to begin work at once in my Jonesville, La., apiaries. Must batch it. Give all particulars first letter.

H. O. AHLERS, West Bend, Wis.

Young man, preferably from near-by State, with a little experience, and quick thorough worker, valuing an insight into modern extensive beekeeping more than salary, could spend 4 to 7 weeks with us during the rush beginning May 15 to June 1. Write immediately, giving salary, age, experience, etc. We have 11 yards, more than 1000 colonies.

E. F. ATWATER, Meridian, Idaho.

SITUATION WANTED

Position wanted by expert beekeeper. Address B. W. WELLS, Grand Rapids, Wis.

BEEKEEPERS' DIRECTORY

If you need queens by return mail send to J. W. K. SHAW & Co., Loreauville, Iberia Parish, La.

Nutmeg Italian queens, leather color, after June 1, \$1.00 by return mail. A. W. YATES, Hartford, Ct.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortland St., New York.

QUEENS.—Improved red-clover Italians bred for business June 1 to Nov. 15, untested queens, 75c each; dozen, \$8.00; select, \$1.00 each; dozen, \$10; tested queens, \$1.25 each; dozen, \$12.00. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Boyd, Ky.

Keep Ants Away

They will not attack or come near woodwork if it is painted with

AENARIUS CARBOLINEUM

RECOMMENDED

and will stay away from beehives so protected. Write for circulars.

Carbolineum Wood Preserv's Co.

Dept. 103, Milwaukee, Wis.

SPECIAL NOTICES

By Our Business Manager

A BARGAIN IN ROTARY PUMPS.

We have a number of half-inch rotary pumps which, for thick honey, have proven not quite adequate in rapid work, but which for water or other liquids will handle two gallons per minute at 100 revolutions. Weight, without pulley, 5 lbs. Will furnish them at special price of \$5.00 each while present stock lasts.

ALSIKE AND MEDIUM CLOVER SEED.

We still have a supply of choice alsike and medium clover seed which we offer at prices last quoted as follows, bags included, not prepaid: Peck, \$8.00; $\frac{1}{2}$ bushel, \$5.50; one bushel, \$10.50; 2 bushels, \$20.50. Medium clover seed, peck, \$2.60; $\frac{1}{2}$ bushel, \$5.00; bushel, \$9.50; 2 bushels for \$18.50.

SWEET-CLOVER SEED.

We are sold out of hulled white-sweet-clover seed for the time being, but hope soon to have a further supply. Prices last quoted are withdrawn and new prices will be quoted when we know what new supply costs. We have a good supply of other kinds which we have been offering, including unhulled white.

Prices in lots of 1 lb. 10 lb. 25 lb. 100 lb.

<i>Melilotus alba</i> , biennial:				
White sweet clover, unhulled	.21	\$1.90	\$4.50	\$17.00
<i>Melilotus officinalis</i> , biennial:				
Yellow sweet clover, unhull'd	.21	1.90	4.50	17.00
Yellow sweet clover, hulled	.28	2.60	6.25	24.00
Yellow sweet clover, annual	.14	1.20	2.75	10.00

SECOND-HAND FOUNDATION MILLS.

We have to offer the following list of foundation machines which have been used, but are in fair condition. In many cases they will answer as well as a new machine where you have only a moderate output. Send for samples of any mill in the list which may interest you.

No. 0139, $2\frac{1}{4} \times 6$ hexagonal thin-super mill, in very good condition. Price \$14.00.

No. 0140, $2\frac{1}{4} \times 6$ hexagonal thin-super mill, in very good condition. Price \$14.00.

No. 0142, $2\frac{1}{4} \times 6$ hexagonal thin-super mill, in fair shape. Price \$10.00.

No. 0153, $2\frac{1}{4} \times 6$ hexagonal thin-super mill, in very good condition. Price \$14.00.

No. 0154, $2\frac{1}{4} \times 6$ hexagonal thin-super mill in very good condition. Price \$14.00.

No. 0156, $2\frac{1}{4} \times 6$ extra-thin-super mill, fair. Price \$10.00.

No. 0165, $2\frac{1}{4} \times 6$ hexagonal extra-thin-super mill in fair condition. Price \$12.00.

No. 0183, $2\frac{1}{4} \times 6$ hexagonal thin-super mill, very good condition. Price \$14.00.

No. 0207, $2\frac{1}{4} \times 6$ hexagonal cell thin-super Dunham mill in good condition. Price \$10.00.

SPECIAL NOTICES

A. I. Root

HELIANTI, THE NEW WONDER PLANT; SEE PAGE 318, APRIL 15.

After the above was put in print I learned that the Burgess Seed and Plant Co., of Allegan, Mich., are not responsible for what I quoted from the circular in regard to helianti; and, furthermore, it is not the common artichoke, although it may belong to the same family. I have now two of the tubers in my possession. See further particulars in next issue.

DASHEEN TUBERS TO OUR SUBSCRIBERS.

On my return from Florida I brought along about two bushels of tubers left after filling all orders; and as they are still in good condition to plant, there is still a chance for some who may have put off sending for them. Any one who sends us \$1.00 for GLEANINGS, or who has already subscribed for a year or more in advance, can have a couple of tubers on application. You need not take the trouble to write a letter. Just say on a postal, "I have paid

up a year ahead, as you will notice, and would like a couple of the dasheen tubers as offered in GLEANINGS for May 15."

THE ANTI-SALOON LEAGUE YEARBOOK.

If any of our readers have any questions to ask in regard to the progress of temperance work they will find every thing answered, probably, as correctly as possible, by the Anti-saloon League Yearbook. It contains accurate maps of nearly every State in the Union, showing how much is dry and how much is wet; and it discusses the whole matter with a weight of authority probably exceeding that of any other book or periodical published in the world. A letter from friend Cherrington, the author, sums it all up in a better way, perhaps, than I could do it, even if I spent hours of time in going over it.

Mr. Root:—I am sending you, under separate cover, a copy of the Anti-saloon League Year Book for 1914, which is just off the press.

This is the seventh year for this annual publication, which is an encyclopedia of up-to-date facts and figures dealing with the liquor traffic and the temperance reform in the United States, and which has reached a circulation of almost a quarter of a million. In the volume for this year more detailed information on various phases of the liquor problem, with official statistics for every State, is given than in that of any previous year.

Perhaps the most striking new feature of the 1914 book is the comparative statistics of manufactures, crime, pauperism, insanity, industrial conditions, etc., in all prohibition and license States. These statistics are especially significant because the comparisons cover every State in the nation.

The tables on pages 18 and 19 are of more than passing interest, showing, as they do, the increase in ten years in the number of wage-earners employed and in the value of products of manufactures for each of the prohibition States, the near-prohibition States, the partially license States and the license States. Similar comparative tables of prison statistics on pages 53 and 54, those on pauperism on pages 46 and 47, and those on insanity on pages 50 and 51 are timely, in view of the general movement now on for State and national prohibition of the liquor traffic.

If this volume appeals to you as being worthy of notice in the columns of your paper, the writer will be grateful for any review notice or comment which you may feel free to make. You will notice that the paper-bound volume contains 244 pages, and is sold by the American Issue Publishing Company, Westerville, Ohio, at 25 cents postpaid. The cloth-bound edition, soon to be published, will sell for 50 cents postpaid.

Very sincerely yours,

ERNEST H. CHERRINGTON,

Westerville, Ohio, Feb. 11. Editor.

This book should be read and studied by every man, woman, and child in our land, even if it does cost the small sum of 25 cents.

THE "BEST" LIGHT



MAKES and burns its own gas. Produces 100 candle power light—brighter than electricity or acetylene—cheaper than kerosene. No dirt. No grease. No odor. Over 200 styles. Every lamp warranted. Agents wanted. Write for catalog. Do not delay.

THE BEST LIGHT CO.
306 E. 5th St., Canton, Ohio

New Easier Better Spraying

Write For Free Book
How to save money, labor, time. Banish blight, disease and insects from orchards, etc. Use Brown's Auto Spray
Style shown has 4 gal. capacity—non-clogging Auto Pop Nozzle. 40 other styles and sizes—hand and power outfitts.
E. C. Brown Co., 20 Jay St., Rochester, N.Y.

Convention Notices

IOWA SUMMER MEETINGS.

The Iowa Beekeepers' Association has arranged for a series of summer meetings, the first of which will be held on May 19 and the last on Aug. 20. Most of these meetings will be in the nature of picnics. Everybody will bring a basket of lunch, the wife and babies, and enjoy the day.

The first field day will be held near McGregor or North McGregor on May 19. It is desired that the honey-producers of Iowa and Wisconsin meet together on this occasion, and McGregor has been chosen as a convenient point. N. E. France, of Wisconsin, will be the principal speaker, and a large attendance is expected. Beekeepers from considerable distances have already signified their intention to be present.

At Colo, June 10, the Ladies' Aid Society will serve dinner at a reasonable price, and the field meet will be held at the Hall home apiary, which is within easy reach of the station. Mr. Hall's big honey-house will be used for a convention hall in case of rain. Professor C. E. Bartholomew, of Ames, will give the principal address. So much interest has been manifested in the Hall methods of honey production that a good attendance is assured.

At Forest City, June 17, the meeting will be held on the grounds of Hon. Eugene Secor, former president of the National, and one of the best-known beekeepers of the middle West, who has kept bees continuously in his present location for forty years. It is hoped that a liberal representation of Minnesota beekeepers will be present here, as it but a few miles from the State line.

At Des Moines, July 15, a big day is planned at the Dustman apiary, which is convenient to the car line. The committee is planning a series of interesting demonstrations. The central location and splendid railroad facilities from all directions make Des Moines very easy of access.

At Mt. Pleasant, July 28, is to be held the fifth field meet of the season. The committee is already making plans for the program with C. P. Dadant, of Illinois, as one of the speakers. Beekeepers from Western Illinois and Northeast Missouri will find Mt. Pleasant easy to reach, and should plan to come.

On August 12, at Clarinda, the friends from Nebraska and Missouri will find a point easy of access, and the Strong apiary will be the place of meeting. Mr. Strong, the well-known queen-breeder, has been keeping bees for almost half a century, and will demonstrate his methods of queen-rearing. The program will be announced later.

For several years the beekeepers in the vicinity of Sioux City have held a tri-state meeting, the date of which this year is set for Aug. 20. Friends from South Dakota and Nebraska meet with Iowa beekeepers for an annual picnic at Riverside, and the committee in charge always plan an interesting time.

A meeting will also be held at the Coverdale apiary, at Delmar, the date of which will be announced later. Coverdale has become famous as a grower of sweet clover as well as being an extensive honey-producer. In planning these meetings the association has tried to place them so that at least one would be within reach of every Iowa beekeeper; and we hope note will be made of the times and places, and that friends from other States will attend in goodly numbers.

F. C. PELLET.

FIELD-DAY DEMONSTRATION TO BE HELD AT FORKS OF CREDIT, ONT., CAN., MAY 25, 1914.

The First Canadian National Field Day Meet will be held on Victoria day, May 25, 1914, at the apiary of Mr. H. G. Sibbald, past president of the Ontario Beekeepers' Association, at the Forks of the Credit, Ontario.

This great event, which has slowly been gathering force since last December, has now reached that point where the various committees which have been working on the plan feel that it will surpass anything heretofore attempted in the British Empire.

Plans have been laid for handling a great crowd. Members of committees will be at the various stations from the city up to assist the stranger and bid him welcome. Special coaches will be placed on the train for the beekeepers' accommodation, and the good old-fashioned farmers' hayrack will convey the jolly crowd to the yard, some half mile away.

All the beekeepers within reasonable distance are requested to bring their well-loaded baskets, and

prepare for two meals (noon and evening), to take care of those who come from long distances.

To the beekeeper confined within the narrow limits of city life this field day and picnic offers a day of relaxation and freedom from the cares and worries of business, while the producer from the country is afforded an opportunity to meet the city man.

The editors of *GLEANINGS* and the *American Bee Journal* have consented to be present and take a part in the work of demonstration, while our own fair Province will have its corps of brilliant men on the "firing line."

For a day's outing no spot in all this magnificent country of ours can surpass the beautiful Forks. Poets have sung its praises; historians have recorded its beauties, but the tongue of man cannot justly describe the sublime and majestic scenery.

Then, dear beekeeper, lay aside your cares and anxieties, come along and bring your families, and enjoy the pleasure of friendly intercourse with the great men of our ranks.

The committee, herewith present the program with a feeling of pardonable pride. Never in the history of beeedom in Canada has such a brilliant galaxy of men been brought together for such a purpose. In the evening of life, while dwelling on sweet thoughts of the past, may this great field meet induce you to say:

"Backward, turn backward, O time, in thy flight,
Make me a child again just for to-night."

PROGRAM.

C. P. R. train leaves Union at 7:20 A. M.; arrives at Forks of Credit at 9:25 A. M.
10:00 A. M.—General inspection of apiary, honey-house appliances, etc.; conducted by Mr. Sibbald.
10:45 A. M.—Mr. J. L. Byer, President of the O. B. K. A., will officiate.
11:30 A. M.—Greetings to all sister organizations and delegates.
12:00 M.—Lunch, provided by ladies.
1:15 P. M.—Mr. C. P. Dadant, editor of the <i>American Bee Journal</i> .
2:15 P. M.—Mr. Morley Pettit, Provincial Apiarist.
3:00 P. M.—Mr. E. R. Root, editor <i>Gleanings in Bee Culture</i> .
4:00 P. M.—Mr. M. B. Holmes, Athens, Ont., director of R. B. K. A.
4:25 P. M.—Mr. Wm. Couse, Streetsville, Ont.
5:15 P. M.—Lunch, toasts, greetings, etc.
Train leaves Forks at 6:15 P. M.; arrives at Union at 8:25 P. M.
Ladies' committee (white badge), Mrs. Sibbald, Pres. Please leave baskets with ladies' committee. Information committee (blue badge), all stations. Field committee (yellow badge), Mr. Wilson, Pres. Fare, round trip, \$1.15.

G. R. CHAPMAN, Pres.

CHAS. E. HOOPER, Sec.

Toronto, Ont., April 8, 1914.

FOR SALE

300 8-fr. supers in flat with fence separators and section-holders, fitted for plain sections, 4 $\frac{1}{4}$ x 4 $\frac{1}{4}$ x 1 $\frac{1}{2}$, with super springs, each, 30c; 250 of above set up and painted, each, 35c; 250 10-fr. like above, set up and painted, each, 40c; 300 wood-zinc queen-excluders, 14 x 20, each, 12 $\frac{1}{4}$ c; 200 same, 16 x 20, each, 15c; 20 chaff division-boards, nailed, each, 15c; 1 comb-bucket, 75c; 10 supers for Imp. Lang-Simplicity hives, each, 20c; 25 Miller feeder, with super, for 8-fr., nailed and painted, 85c; 50 Porter bee-escapes with board, painted, for 8-fr. hives, 30c; 50 Porter bee-escapes with board, painted for 10-fr. hives, 35c; 30 full-depth 8-fr. hive-bodies with full drawn-out combs, 8 in hive, each, \$1.50; 50 10-fr. hive bodies with 10 Hoffman frames, set up and painted, each, 50c.

COPY OF CERTIFICATE OF INSPECTION

Redwood Falls, Minn., May 6, 1914.

This is to certify that I have this day inspected the apiary of Mr. F. A. Gray, and found no evidence of any contagious disease.

J. A. HOLMBERG,

State Inspector of Apriaries.

All of the above supplies will be sold in lots to suit. All of above supplies except those in flat have been used, but are in fine condition.

F. A. GRAY, REDWOOD FALLS, MINN.

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No. 501 Set of Quality Knives

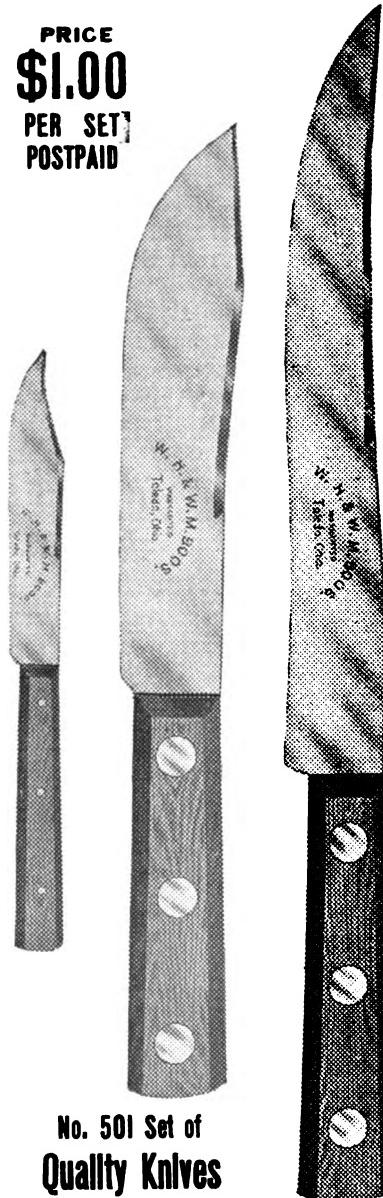
OUR set of "QUALITY" KNIVES is made up of one 8-inch SLICER, one 6-inch BUTCHER, and one 3½-inch PARING-KNIFE. A combination of three of the MOST USEFUL SIZES and DESIGNS that one can have in his home. In presenting this set of knives we want to impress upon the trade the fact that these knives are all their name implies, QUALITY IN THE STRICTEST SENSE OF THE WORD. There is nothing better in the way of cutlery to be had for IT IS IMPOSSIBLE TO MAKE ANY THING BETTER. The Set is MADE UPON HONOR THROUGHOUT to the MINUTEST DETAIL. BLADES are of the VERY BEST TEMPERED CRUCIBLE STEEL, SWEDGED, ETCHED, and FINISHED with the Highest Polish it is possible to put on metal. Handles are GENUINE COCOBOLO, Beveled Edges, Through Tang with Three Large Brass Saw Rivets. We ABSOLUTELY GUARANTEE the QUALITY of this set of knives to be Strictly First Class in Every Way and the BEST VALUE EVER OFFERED. LIST PRICE the set \$1.00 postpaid.

Premium Offer

We will send this complete set of knives postpaid to any reader who sends us one new yearly subscriber to Gleanings in Bee Culture at \$1.00 per year, or the same for four new six-months-trial subscribers at 25c. each

Canadian postage on subscription for one year, 30c extra. On each trial subscription, 15c extra.

PRICE
\$1.00
PER SET
POSTPAID



No. 501 Set of
Quality Knives

A WORD OF PRAISE FOR THE PREMIUM KNIVES.
Calvert, Ala., Oct. 22, 1913.

The A. I. Root Co., Medina, Ohio.
I received the set of premium knives and am well pleased with them. Yours very truly,
R. RHODENBERGER.

The A. I. Root Co., - Medina, Ohio

Honey-Cans

We have made especial efforts this season to supply our patrons with cans and cases of the finest quality, and we have now in our warehouse a complete stock ready for immediate shipment to you.

There is much satisfaction in knowing that there is a dependable source of supply so near to all Texas Beekeepers, and others in the great Southwest. Experience has taught us to anticipate properly the needs of our patrons, and we have as yet failed to fall down at a critical time. Sometimes we feel that it is not wise for Beekeepers to trust entirely to the supply house for eleventh-hour assistance, but we concentrate our energies, nevertheless, on complete preparation, and when you are ready we are. Write us for prices.

Weed's New Process Comb Foundation

We have made extensive improvements in our comb-foundation factory this season at a great expense, and are now operating day and night under the supervision of a man direct from The A. I. Root Company, who has had many years of experience in the manufacture of this product. When placing your order with us you are assured of receiving Comb Foundation of unexcelled quality.

Sell Us Your Honey and Beeswax

We desire as usual to buy all the first-class white honey we can obtain. We are now paying for bulk comb honey of the above grade, properly put up f. o. b. the beekeeper's railroad shipping point:

2 Sixties	10c per lb	10 Twelves	10½c per lb
10 Sixes	11c per lb	20 Threes	11½c per lb

Prices subject to change without notice.

A full line of Root's Beekeepers' Supplies on hand at all times ready for immediate shipment.

Toepperwein & Mayfield
Nolan and Cherry Sts. San Antonio, Texas

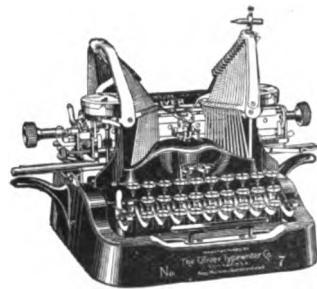
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Can you spend 17 cents a day to better advantage than in the purchase of this wonderful machine?

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THE Coward Good Sense Shoe

Strengthens weak arches, straightens turned ankles, supports the entire foot structure; gives the toes room to exercise, helps the child's walk—prevents "flat-foot."

Coward Arch Support Shoe and Coward Extension Heel made by James S. Coward for over 33 years.

FOR CHILDREN, WOMEN AND MEN.

Sold Nowhere Else. Mail Orders Filled.

JAMES S. COWARD

264-274 Greenwich St., near Warren St., New York

Now! These New Engine Prices

Direct from Factory to User	2 H-P, \$34.95
	4 H-P, 69.75
	6 H-P, 99.35
	8 H-P, 139.65
	12 H-P, 219.90
	16 H-P, 298.30
	22 H-P, 399.65
	Portable Engines Proportionally Less.

WITTE Engines Kerosene, Gasoline and Gas

Stationary, (skidded or on iron base), and Mounted Styles. Standard the world over for 27 years. Better today than ever. Why pay double price for a good engine, or take a poor or doubtful one for any price, when the WITTE costs so little and saves all risk?

60 Days' Free Trial 5-Year Warranty

Direct from Factory to Users, for cash or on easy terms, at prices hitherto unheard of, for engines of these merits: Long-wearing, semi-steel, separable cylinders, and four-ring pistons; all vertical valves; automobile ignition; spark shift for easy starting; variable speed; and others, without which no engine can now be high-grade. I am simply sharing my manufacturing advantages with engine buyer-users—asking only one small factory profit.

New Book Free The most easy-to-understand engine book in the business. Gives the "inside" of engine selling as well as manufacturing. Shows my liberal selling plans with complete price list. Write me for my full address for my prompt reply.

Ed. H. Witte, Witte Iron Wks. Co.
1931 Oakland Ave., Kansas City, Mo.



ANSWERS TO 150 QUESTIONS

**By the Editor of
GLEANINGS IN BEE CULTURE**

The first fifty or sixty questions are those commonly asked by beginners. The remainder are queries that naturally arise in the minds of more experienced beekeepers. The last hundred questions have been asked by GLEANINGS subscribers, and are put in permanent form in this way because they cover those points which so often perplex beekeepers.

The index enables one to find at once answers which will help him to solve many of the puzzles connected with the care of bees.

The five questions given below have been taken at random from the book.

- How can I tell a queen-cell from all the rest?
- What is the best way to introduce a valuable queen?
- What must be planted for bees to work upon?
- I have an engagement to give a live-bee exhibit at our county fair this fall. This will be my first experience. Is it advisable to feed the bees while they are confined?
- In comparison, all points considered, for comb honey, what advantage if any has the $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{1}{8}$ over the $4 \times 5 \times 1\frac{1}{8}$ section?

Send for the book as premium when you renew your subscription to GLEANINGS, and read the answers to these questions and the other 145.

A copy of "Answers to 150 Questions" and "Gleanings in Bee Culture" one year Both for \$1.00

Canadian postage, 30 cts. extra; Foreign postage, 60 cts. extra.

The A. I. Root Co., Medina, Ohio

Gleanings in Bee Culture

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VOL. XLII. JUNE 1, 1914, NO. 11.

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The Old Original 1853 Edition of Langstroth Reprinted Now Ready for Distribution

One of the Most Charmingly Written and Entertaining Books that was Ever Published

It so stirred A. I. Root in the early days that he wrote: "What a gold mine that book seemed to me! . . . Never was romance so enticing—not even Robinson Crusoe; and, best of all, right at my own home I could live out and verify all the wonderful things told therein."

Here is what Others say:

This will preserve the original for future generations.

G. M. DOOLITTLE.

Marietta, N. Y., April 16.

I am much pleased with the reprint which has come to hand.

Amherst, Mass., April 15.

B. N. GATES.

It is very interesting, not only from a sentimental but from a practical standpoint.

Guelph, Can., April 21.

MORLEY PETTIT.

The dear old man was one of God's very own; and to have this reminder of him on my book-shelf will give me much pleasure.

Sacramento, Cal., April 18.

A. J. COOK,

State Commissioner of Horticulture.

It seems good to read again this charming work. It must ever remain to the American beekeeper a classic, both instructive and fascinating.

Middlebury, Vt., April 15.

J. E. CRANE.

It is well to have Langstroth reprinted; and if all would read it, many would be saved from going over well-thrashed straw. I have several of the early editions, and am glad to add this to them.

ARTHUR C. MILLER.

Providence, R. I., April 20.

I have a copy of the reprint of the 1853 Langstroth. I have long admired the writings of Langstroth, and had read his original edition with great interest. It is especially interesting in that he discusses some of the points that are annually "discovered" by others who are unfamiliar with the literature on bees. I feel that it will benefit American beekeepers to become familiar with this book, and trust that it will have a wide distribution. The book is a classic, and should be known to all good beekeepers.

E. F. PHILLIPS.

Washington, D. C., April 16.

I am much pleased to get the reprint of Langstroth, and I thank you heartily for the same. I have not yet had a chance to look it through, but did look into it enough to recognize the dear old book. It was the very first thing I ever read on bees, and I read it through the first night—the night of the day I captured my first swarm. At least I read it till I dared not sit up any longer lest my father arrive on the scene with a slipper. I did not dare look at the clock when I finally did go to bed. Yes, I got the fever bad.

ALLEN LATHAM.

Norwichtown, Ct., April 30.

"Entered according to Act of Congress in the year 1853, by L. L. Langstroth." Entered at the same time, without any act of Congress, by means of the book containing the aforesaid legend and the hive which accompanied it, a flood of light upon the dense darkness that had from the foundation of the world enshrouded the secret and mysterious doings of the little busy bee within its closed domicil.

That divides the history of beekeeping into two distinct periods—the long ages before 1853, and the little span of threescore years since then. The rapidly diminishing few who have lived in both periods are in best position to appreciate the immense difference in the two. As we scan again the pages of the old—and ever new—book, "Langstroth on the Hive and the Honey-bee," how memories arise of "the grand old man" with the inventive brain and loving heart, and with the gentle voice we loved so well to hear! What a blessing that the same man who could make such a revolutionary invention could also write so beautifully! Whatever other books the beekeeper may or may not have, he is likely always to cherish the one classic from the graceful pen of the beloved Langstroth.

C. C. MILLER.

Marengo, Ill.

While some of our readers may, perhaps, feel that this work would be out of date, the fact is,

FATHER LANGSTROTH WAS 60 YEARS AHEAD OF HIS TIME.

So much so that he revolutionized beekeeping throughout the world.

The book that helped to bring about this remarkable revolution is well worth reading to-day. It is full of valuable tricks of the trade.

PRICE: 400 pages, bound in cloth, \$1.00 postpaid; clubbed with GLEANINGS, \$1.50; with A B C and X Y Z of Bee Culture, \$2.50; with Dadant's Revised Langstroth, \$1.85.

The A. I. Root Company, Medina, Ohio

SEASONABLE "falcon" Bee Supplies

HIVES—What better chance have you to get your "falcon" hives nailed than just now? Now's the time to place your order for some "falcon" hives. Make use of your spare time by nailing your hives and frames.

SECTIONS—Sections ordered at this time can be folded before the season begins, and you are that much more ahead, which means money in your pocket.

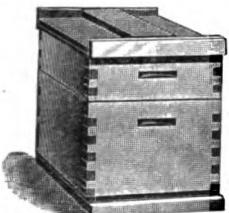
FOUNDATION—This is an excellent time to order foundation and to put it into sections and frames, now when you have the spare time, thus preparing you to go into the season with a good start. Here's what Mr. J. J. Wilder, Cordele, Ga., says about our foundation: "Your foundation is the best I ever bought, and I am more than pleased with it." Mr. Wilder is one of the largest beekeepers in the country.

SUPERS—Supers can be nailed and painted, and filled with sections and starters, by ordering your requirements now. You can not afford to be without supers when the rush comes. Get your order in for "falcon" supers now before the swarming season begins. Send for our foundation samples and new Red Catalog, postpaid.

Dealers Everywhere: New England States, Ross Bros. Co., 90 Front Street, Worcester, Mass.
Central States, The Fred W. Muth Co., 904 Walnut St., Cincinnati, Ohio.
Western States, C. C. Clemons Bee Supply Co., 128 Grand Ave., Kansas City, Mo.
Southern States, J. J. Wilder, Cordele, Ga., and many others here and abroad.

W. T. Falconer Manufacturing Company, Falconer, New York

Where the good beehives come from



EARLY-ORDER DISCOUNTS WILL

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29 years' experience in making everything for the beekeeper. A large factory specially equipped for the purpose ensures goods of highest quality. Write for our illustrated catalog and discounts today.

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"ROOT" "PEIRCE" "ZANESVILLE"

Three words that unlock the possibilities of successful beekeeping.

"ROOT QUALITY" has always represented the acme of perfection in every thing pertaining to bees.

"PEIRCE SERVICE" is fast becoming a synonym for promptness coupled with courtesy and fairness.

ZANESVILLE—the metropolis of eastern and southern Ohio—is the logical distributing-point for the beekeepers of Ohio, West Virginia, and western Pennsylvania; and those more remote can be served with a large degree of satisfaction on account of the superior shipping facilities of this city.

Our 1914 Catalog of Beekeepers' Supplies and Introduction to Beekeeping is now being sent to those on our mailing-list. If you have not already received or do not receive it soon, a postal-card request will insure your receiving it without delay.

Prospects for the coming season are unusually bright, and both prudence and economy would suggest the early placing of your order.

E. W. Peirce, Zanesville, O.

Airdome Bldg., South Sixth St.

"Curiosity Killed a Cat."

That is a well-known old-time saying; but it does not apply to you, because YOU ARE NOT A CAT. It is safe for you, and for your wife and your children, to want to know what is to be found in the woods and the fields around you, in the swamps and meadows, the ponds and ditches. Do not hesitate to indulge in the JOY OF CURIOSITY. You are not a cat. You can satisfy the desire to know by reading

THE GUIDE TO NATURE

It is ten cents a copy;
one dollar a year.

Address

ARCADIA :
Sound Beach, Connecticut

HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

NATIONAL BEEKEEPERS' ASSOCIATION GRADING-RULES *Adopted at Cincinnati, Feb. 13, 1913.*

Sections of comb honey are to be graded: First, as to finish; second, as to color of honey; and third, as to weight. The sections of honey in any given case are to be so nearly alike in these three respects that any section shall be representative of the contents of the case.

FINISH:

1. *Extra Fancy*.—Sections to be evenly filled, comb firmly attached to the four sides, the sections to be free from propolis or other pronounced stain, combs and cappings white, and not more than six unsealed cells on either side.

2. *Fancy*.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white, and not more than six unsealed cells on either side exclusive of the outside row.

3. *No. 1*.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white to slightly off color, and not more than 40 unsealed cells, exclusive of the outside row.

4. *No. 2*.—Comb not projecting beyond the box, attached to the sides not less than two-thirds of the way around, and not more than 60 unsealed cells exclusive of the row adjacent to the box.

II. COLOR:

On the basis of color of the honey, comb honey is to be classified as: first, white; second, light amber; third, amber; and fourth, dark.

III. WEIGHT:

1. *Heavy*.—No section designated as heavy to weigh less than fourteen ounces.

2. *Medium*.—No section designated as medium to weigh less than twelve ounces.

3. *Light*.—No section designated as light to weigh less than ten ounces.

In describing honey, three words or symbols are to be used, the first being descriptive of the finish, the second of color, and the third of weight. As for example: Fancy, white, heavy (F.W.H); No. 1 amber, medium (1-A-M), etc. In this way any of the possible combinations of finish, color, and weight can be briefly described.

CULL HONEY:

Cull honey shall consist of the following: Honey packed in soiled second-hand cases or that in badly stained or propolized sections; sections containing pollen, honey-dew honey, honey showing signs of granulation, poorly ripened, sour or "weeping" honey; sections with comb projecting beyond the box or well attached to the box less than two-thirds the distance around its inner surface; sections with more than 60 unsealed cells, exclusive of the row adjacent to the box; leaking, injured, or patched-up sections; sections weighing less than ten ounces.

HONEY GRADING RULES ADOPTED BY THE COLORADO STATE BEEKEEPERS' ASSOCIATION, DECEMBER 13, 1911.

FANCY WHITE.—Sections to be well filled, comb firmly attached to all sides and evenly capped except the outside row next to the wood. Honey, combs, and cappings white, and not projecting beyond the wood; wood to be well cleaned; no sections in this grade to weigh less than 13½ ounces.

No. 1.—Sections to be well filled, combs firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey white or very slightly off color. Combs not projecting beyond the wood; wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

CHOICE.—Sections to be well filled; combs firmly attached; not projecting beyond the wood, and entirely capped, except the outside row next to the wood. Honey, comb, and cappings from white to amber, but not dark; wood to be well cleaned; no section in this grade to weigh less than 12 ounces.

No. 2.—This grade is composed of sections that are entirely capped, except row next to wood, weighing from ten to twelve ounces or more; also of such sections that weigh 12 ounces or more, and have not more than 50 uncapped cells all together, which must be filled. Combs and cappings from white to amber in color, but not dark; wood to be well cleaned.

EXTRACTED HONEY.—Must be thoroughly ripened, weigh 12 pounds per gallon. It must be well strained, and packed in new cans. It is classed as white, light amber, and amber.

STRAINED HONEY.—This is honey obtained from combs by all other means except the centrifugal extractors, and is classed as white, light amber, amber, and dark; it must be thoroughly ripened and well strained. It may be put up in cans that previously have contained honey.

DENVER.—Regarding the honey market, we have no more comb honey to offer. We are jobbing extracted honey as follows: White extracted, 8¢; light amber, 7¢. We pay 32 cts. per pound cash and 34 in trade for clean yellow wax delivered here.

COLORADO HONEY-PRODUCERS' ASSOCIATION,
Denver, Col., May 16. F. RAUCHFUSS, Mgr.

INDIANAPOLIS.—Fancy white comb is being offered here at 16 to 17 cents per pound; amber comb, 14 to 51¢; white-clover extracted, 9 to 10 in 5-gallon cans. Much comb honey is being held here; but at this writing there is very little demand. Extracted is in fair demand. Producers are being paid 32 cents cash for beeswax, or 34 in trade.

Indianapolis, May 22. WALTER S. PODER.

**JUST
OUT!**

New 1914 Catalog -- "Everything for Bees"

Lay your plans for the new season now. Send for the 1914 Muth Catalog of Beekeepers' Supplies. It's just off the press. In it you will find full information about the remarkable MUTH SPECIAL Dovetailed Hives. Drop a postal card at once---sure!

THE FRED W. MUTH CO.

204 WALNUT STREET

"The Busy Bee Men"

CINCINNATI, OHIO

P. S.—Ship us your old combs and cappings and let us render them for you. Our process extracts the last drop of wax from the slumgum. This means money for you. Write for full particulars.

SPECIAL DELIVERY

During this month we shall double our usual efforts in points of delivery and service. We carry nothing but the Root make, which insures the best quality of every thing. We sell at factory prices, thereby insuring a uniform rate to every one. The saving on transportation charges from Cincinnati to points south of us will mean quite an item to beekeepers in this territory. We are so located that we can make immediate shipment of any order the day it is received.

New 64-page Catalog

Our new 1914 catalog contains double the pages of former editions and requires extra postage. It is filled from cover to cover with complete lists of goods in every line to meet every requirement of beekeepers. If you haven't received a copy when you read this, be sure to ask for one. It will save you money.

New Features for 1914

Few radical changes have been made this season. It should be noted, however, that we will send out with regular hives, unless otherwise ordered, the metal telescopic or R cover with super cover underneath. The side rail for the bottom-board will be extra length so as to overcome the difficulty experienced by some last season. Improvements have been made in extractors. We shall carry a very heavy stock so that orders may be filled with our usual promptness. Write us your needs.

C. H. W. Weber & Co.

2146 Central Avenue

Cincinnati, Ohio

Gleanings in Bee Culture

E. R. ROOT
Editor

A. I. ROOT
Editor Home Dept.

H. H. ROOT
Ass't Editor

J. T. CALVERT
Business Mgr.

Department Editors:—Dr. C. C. Miller, J. E. Crane, Louis H. Scholl, G. M. Doolittle, Wesley Foster, J. L. Byer, P. C. Chadwick.

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POSTAGE IS PREPAID by the publishers for all subscriptions in the United States, Hawaiian Islands, Philippine Islands, Guam, Porto Rico, Tutuila, Samoa, Shanghai, Canal Zone, Cuba, and Mexico. Canadian postage is 30c per year. For all other countries in the Postal Union add 60c per year postage.

CHANGE OF ADDRESS. When a change of address is ordered, both the new and the old must be given. The notice should be sent two weeks before the change is to take effect.

DISCONTINUANCES. Notice is given just before expiration. Subscribers are urged, if unable to make payment at once after expiration, to notify us when they can do so. Any one wishing his subscription *discontinued* should so advise us upon receipt of the expiration notice; otherwise it will be assumed that he wishes GLEANINGS continued and will pay for it soon.

HOW TO REMIT. Remittances should be made by draft on New York, express-order or money-order, payable to the order of The A. I. Root Co., Medina, Ohio. Currency should be sent by registered letter.

AGENTS. Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

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BOSTON.—We quote fancy and No. 1 white comb honey at 15 to 16; fancy white extracted honey in 60-lb. cans, 11. Beeswax, 80:

Boston, May 23. BLAKE-LEE CO.

ZANESVILLE.—No 1 to fancy white comb is quoted at 16½ to 18½ in a jobbing way; 18 to 20 wholesale. Best white extracted in 60-lb. cans, 9 to 10. These quotations are for white clover. Western honeys rule about a cent less. Market firm, but rather quiet. Producers receive for beeswax 32 to 38 cash, 34 to 35 in exchange for supplies.

Zanesville, May 22. EDMUND PEIRCE.

LIVERPOOL.—Ninety-four bags of Chilian beeswax have arrived, and buyers are waiting for these to be placed on the market. The honey market is very dull for Chilian on spot; but there is more enquiry for direct shipment to the Continent. Value of average pile 3 (yellow to brown in color) is \$4.80 to \$4.92 per cwt., c. i. f.

Liverpool, May 13. TAYLOR & CO.

NEW YORK.—As to comb honey, we have nothing new to report. There are some off grades of amber still on the market unsold, as there is no demand to speak of for those grades, and it is almost impossible to find buyers. In regard to extracted, the demand is only fair while arrivals are large, especially from the West Indies, and the new crop is now beginning to arrive from the southern States. We quote nominally from 58 to 75 cts. per gallon, according to quality. Beeswax is firm at 34 to 35.

New York, May 19. HILDEBETH & SEGELEEN.

ST. LOUIS.—The honey market is very dull at present. We are quoting southern extracted and strained bright amber honey in barrels at 5½ to 6½; in cans, 6 to 7; dark, ½ to 1 ct. per lb. less. Comb honey, fancy clover brings from 14 to 15; light amber, 12 to 14; broken and leaky from 7 to 8. By the case, fancy white-clover comb honey brings from \$3 to \$3.25, or light amber from \$2.25 to \$2.50; dark and inferior, \$2.00. Beeswax is very scarce, and wanted; quoted prime at 35; inferior and impure, less.

R. HARTMANN PRODUCE CO.

St. Louis, May 20.

KANSAS CITY.—Our market is about cleaned up on comb honey—not a case left in the wholesalers' hands, and very little left in the retailers'. Plenty of extracted honey, and the demand is very light. New comb honey in 24 sections should sell for \$3.25 to \$3.50 per case for No. 1 quality. We quote extracted white at 7½ to 8. On beeswax we quote 30 for No. 1 quality, and 25 for No. 2.

C. C. CLEMONS PRODUCE CO.

Kansas City, Mo., May 15.

CHICAGO.—The volume of trade is very narrow, and consists in dealers buying just a little to have it on hand when inquired for. No longer is there a show made of it on the counters, etc., as in winter months, all of which is a seasonable condition. The fancy grades are not plentiful, and continue to bring from 14 to 15, according to the flavor, style, and every thing else that go to make a fancy article. Any thing off from this grade sells at from 1 to 3 cts. per lb. less, with amber grades bringing from 10 to 12. Extracted is meeting with practically no demand, and prices are inclined to be easy. Especially is this so aside from fancy clover and linden, which, like the comb, is in better demand, and more firmly held. Beeswax continues to sell upon arrival at from 33 to 35, according to color and cleanliness.

Chicago, May 18. R. A. BURNETT & CO.

Imperial Steel Range Company

The Imperial Steel Range Company, 840 Detroit Avenue, Cleveland, Ohio, has issued one of the most beautiful catalogs of stoves and ranges ever published. The catalog gives a most interesting description, beautifully illustrated, of the entire process of stove-making with special reference to the exclusive features of the Imperial, such as the stone-oven bottom, dustless ash-sifter, and practical odor-hood. One of the most interesting features of the catalog is the

Deposit your Savings
with

**The SAVINGS
DEPOSIT BANK CO.**

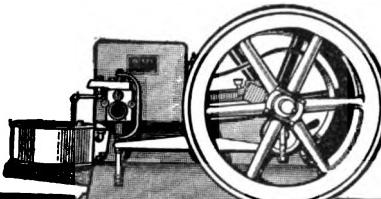
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The Bank that pays 4%

Write for Information

AT SPITZER	E. R. ROOT	E. B. SPITZER
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ASSETS OVER ONE MILLION DOLLARS



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Look at these New Prices!

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8 H.P., \$139.65; 11 H.P., \$219.90; 16 H.P., \$299.80;
22 H.P., \$399.65; Portable Engines Proportionately Low.

Direct From Factory to User

WITTE engines, Stationary, Portable, Skidded and Sawrig styles, have set the quality standard for 27 years. Better today than ever.

Castings of semi-steel, detachable cylinders, vertical valves, four-ring pistons, automobile ignition, variable speed, and other merits, without which no engine can now be high-grade.

60 Days' Free Trial; 5-Year Guaranty

No need to pay double price for any good engine, or to take an out-of-date, poor, or doubtful one for any kind of a price. Don't risk any untried, newfangled devices with highfalutin' names. Let me show you

How To Judge Engines

My New Book shows the "inside" of engine selling as well as of manufacturing. Tells you how to be safe in your engine selection, even if you don't pick a WITTE. Send me just your address, for one of these fine books by return mail.

Ed. H. Witte, Witte Iron Works Co.
1939 Oakland Ave., Kansas City, Mo.

story of how the old "Dutch oven," the famous baking secret of the colonial days, was brought back to modern use by means of the stone-over bottom which affords scientific heat radiation and is responsible for the wonderful evenness and success of baking in the Imperial. It has been well said that it was almost a miracle that modern invention has been able to restore all the advantages of the old Dutch oven, and at the same time eliminate the disadvantages and drawbacks under which the housewives of Colonial days labored on baking day. The Imperial catalog is well worth sending for, and can be had free for the asking.

Gleanings in Bee Culture

DEVOTED TO HONEY, BEES, AND HOME INTERESTS

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Established 1873.

CIRCULATION 35,000

Issued semi-monthly.

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Twenty-five cents per agate line flat. Fourteen lines to the inch.

SPACE RATES. To be used in one issue: Fourth-page, \$12.50; half-page, \$25.00; page, \$50.00.

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Preferred position, inside cover, 50 per cent additional.

Outside cover page, double price.

Reading notices, 50 per cent additional.

Cash-in-advance discount, 5 per cent.

Cash discount if paid in ten days, 2 per cent.

Bills payable monthly.

No medical or objectionable advertising accepted.

Column width, $2\frac{5}{8}$ inches.

Column length, 8 inches.

Columns to page, 2 (regular magazine page).

Forms close 10th and 25th of each month.

Address Advertising Department, Gleanings in Bee Culture, Medina, Ohio.

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Help Wanted

Honey and Wax for Sale

Honey and Wax Wanted

Indian Runner Ducks

Poultry

Real Estate

Wants and Exchanges

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Witte Iron Works

HONEY-DEALERS

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Maruge Co.

Sanitary Bottle Co.

Simmons Hardware Co.

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Williamson, C. J.

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American Bee Journal

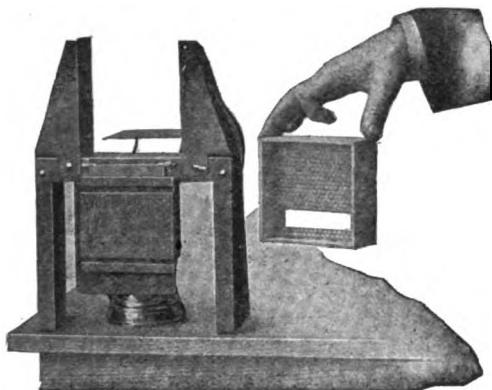
Bigelow, E. F.

Florida Grower

GLEANINGS IN BEE CULTURE

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Woodman's Section-Fixer



A new machine of pressed - steel construction for folding sections and putting in top and bottom starters all at one handling.

With top and bottom starters the comb is firmly attached to all four sides, a requirement to grade fancy. Increase the value of your crop this season by this method.

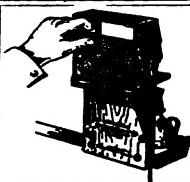
The editor of the "Beekeepers' Review," in commenting on things at the recent Detroit, Mich., beekeepers' convention, stated:

It was the consensus of opinion of those who saw the machine work that it was the best thing for the purpose ever brought on to the market.

The C. & N. W. Beekeepers' convention in December unanimously adopted the following resolution: "Whereas this convention has been impressed by the exhibit of the Woodman Combined Section-press and Foundation-fastener, and believes that the same is practical, and a labor-saver for the bee-keepers at large; Therefore, be it resolved that the Chicago-Northwestern Beekeepers' Association in convention assembled do heartily endorse the above device as a practical machine for beekeepers producing comb honey." I. E. PYLES, ARTHUR STANLEY, W. B. BLUME."

It makes no difference how many or what kind of fasteners you have, we want you to try this one. Your money back if you are not satisfied it is the best on the market. Send for special circular showing 10 illustrations. Immediate shipments of all goods; 40-page catalog. Price with one form, 4x5 or 4 $\frac{1}{2}$ x4 $\frac{1}{2}$, \$2.50; extra form, 15 cts. Daisy lamp, 25 cts. Weight of outfit, 4 lbs. Postage extra.

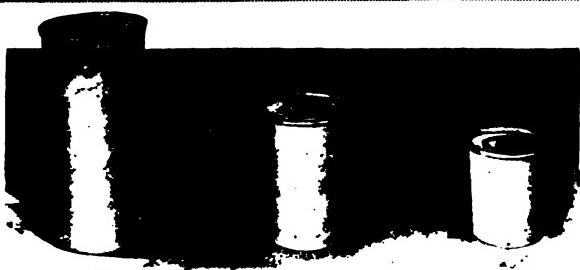
A. G. WOODMAN CO., Grand Rapids, Mich.



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EDITORIALS

A Broken Arm and Hundreds of Stings as a Result of Climbing a Tree for a Swarm

IN addition to the danger of losing valuable swarms there is the added danger, when one is obliged to climb trees, of breaking a leg or an arm. For this reason, if for no other, queens should be clipped.

We are indebted to one of our subscribers, George M. Fetzer, Allentown, Pa., for a clipping describing a most painful accident to Frank Coffin, of Slatington, Pa.

Mr. Coffin had climbed a tree for a swarm, and, holding himself by means of a lineman's belt, began to saw off the limb on which the swarm had clustered. In some way his arm was broken as the limb swung down; and as he was unable to free himself so as to get to the ground he was so badly stung that he had to be taken to a hospital.

Destructive Smelter Smoke in and about Denver; Hailstorms in other Parts of the State; Prospects Unequalled, However

THE following letter, received from our Colorado correspondent, Mr. Wesley Foster, came too late for insertion in his regular department; but it is of such great importance that we have thought best to place it before our readers in the editorial columns.

SMELTER SMOKE OR CITY SMOKE.

Several thousand colonies of bees have been decimated by some undetermined cause. This is within fifteen miles of Denver. The brood is not affected, except as it becomes chilled or starved from the lack of care and warmth. The great majority of the hives have but a small number of bees in them—less than one month ago. Some of the colonies may build up, but there will be little surplus from them unless there is a good late flow.

The strongest colonies are affected the worst, and weak colonies with pollen carried over from last year are not affected seriously. This leads to the conclusion that it must be something which poisons the pollen. Smelter smoke and probably ordinary city coal smoke will do this. The sulphur deposit from the smoke may fall upon and mingle with the pollen to cause the trouble. There is nothing that

can be done that is known so far. The malady affects the bees north and west of Denver for fifteen miles, and east and south for eight or ten miles. This trouble has visited the vicinity of Denver before, and also has wiped out large numbers of bees around Pueblo.

This, if it comes upon us often enough, will play havoc with city beekeeping, and suburban beekeeping for that matter. Beekeepers will have to remain strictly "rural" to avoid smoke.

This bad report from Denver and vicinity will hardly affect the crop in Colorado greatly; but there have been destructive hailstorms in the Arkansas Valley in the past two days. Five inches of hail fell at Colorado Springs, and a very destructive storm visited the west end of Prowers County. I will inform you later of its severity. Prospects are simply unequalled in some parts of Colorado.

The New Ruling in Regard to Labeling Food Products

OUR readers will remember, perhaps, seeing on labels covering many of the principal food products on the market the words, "Guaranteed under the pure food and drugs act of June 30, 1906. Serial No. —." But it now appears that certain unscrupulous manufacturers are trying to make it appear that when the Government gave them a serial number it thereby put its seal of approval on their products. All this serial number signifies is that the manufacturer has agreed to comply with the requirements of this food act. While he may comply strictly with the letter of the law, his product may be of very poor quality, and the guarantee clause has made it appear as if the Government said they were all right. The Government has now amended the rules and regulations in such a way that after May 1, 1915, the words "Guaranteed under the pure food and drugs act of June 30, 1906, serial No. —," shall no longer be used. But a manufacturer has a right to guarantee on his bill of sale, invoice, bill of lading, or other schedule that the article is pure in accordance with the pure food and drugs act.

Those who are using honey-labels with a guarantee clause, as before mentioned, will please take notice. To be on the safe side

all new labels should be printed with the guarantee eliminated from now on to make sure that there will be none left by May of next year.

Safe Arrival of the Second Load of Bees at Medina; Robbing at our Home Yard

THE second car of bees arrived here in splendid condition, notwithstanding it has been very hot for a couple of days back, and that at the hour of arrival the mercury hovered close to 90 in the shade. To make matters still worse, the honey-house door had been left open on the Sunday previous, and the bees, already in the yard, found it very convenient to help themselves to honey in the combs. They were, indeed, doing a land-office business when they were discovered. The next day was the day when the bees were to arrive, and we were exceedingly apprehensive as to what the result would be when the car should be unloaded, especially if there were any melted or broken-down combs. As the mercury remained high, and the hour for the arrival of the bees drew near, we became still more apprehensive. In the mean time robbers had pounced on some weak nuclei; and, besides this, there was the characteristic hum of robbing that is any thing but pleasant to the beekeeper.

A platform had been built up at one corner of the home yard, close to a siding where the bees were to be unloaded. All hands had been notified to be ready. The automobile truck and our big team were to be on hand in due time. The weather became hotter and more sultry, and the robbers were as mean as we had ever known them in Medina.

In this connection perhaps we ought to say that we always particularly stipulate, when we hire men for the beeyards, that they be careful to guard against robbing; for a boy or man who allows robbing to get started spoils his chance of getting an increase in wages, even if he does not lose his job altogether. Well, when one of our editorial force hived a swarm on Sunday, and left the door of the honey-house open, the joke was on us. We told the boys it was a good thing that they had the laugh on us.

Soon we heard the toot of the approaching locomotive, and our heart sank within us. Our Mr. Calvert suggested, "Why not unload the bees in the basement of the big warehouse?" Capital idea! Why didn't we think of it before? We immediately got in touch with our local railroad agent over the phone. We told him we wanted that car

switched down to the warehouse. The before-mentioned basement is cool, and even on the hottest days it maintains a temperature not above 65. Soon the train came thundering in. The car was put in place, and then a gang of men began work, for not a minute was to be lost. In the space of an hour we had the car unloaded in a cool basement, secure from robbers, and two loads of bees on the way to the out-yards. A third load was sent off before dark; and by nightfall we had nearly 100 colonies located.

The basement is so nice and cool that the bees at this writing, 8 A. M., May 26, are perfectly quiet, and the automobile truck is moving the bees to the outyard, 30 colonies at a time. We shall have all the bees placed by noon.

The weather was so extremely warm on this trip that our Mr. Jack Deyell actually gave the bees five barrels of water, and not a colony has been lost so far, and the average bottom screen does not have a hundred bees on it—sometimes not more than a dozen. The most that any has had is a double handful from two or three colonies. Where such loss occurred at all, it was evident there were too many bees to the hive.

We feel now that the next two cars can not come through under worse conditions. There is not a single comb, so far as we know, that was broken down on this trip. We assume we shall be able to do still better on the next two carloads that are yet to come, for conditions can scarcely be worse. The last two started to-day, and will arrive in Medina, probably, on the first of June.

The secret of moving bees successfully is in having strong staging so as to provide plenty of air space at the top and bottom screens of the hive, not too many bees to the hive, and plenty of water *en route*. Our first carload of bees came when the weather was cool, and required only two barrels of water. The second car came when the weather was extremely warm, and took five barrels of water.

Our Cover Picture

OUR cover picture for this issue, as mentioned on page 413, shows a boatload of three-frame nuclei on the way from Randlett's Landing, Fla., where most of our bees were located, to the nucleus yard five miles above. Before moving the bees north we formed 500 nuclei, 50 at a time, and took them five miles up the river, from which point they were to be picked up by the big boat on the way to Bainbridge when the

shipments back to Medina were begun. Some may wonder why we moved them so far away, as it is necessary to have them located only far enough away so that they will not attempt to return to their old entrances. The reason for moving them so far was that along the Apalachicola River the banks are low and the ground swampy in many places, and it would be unwise to locate bees anywhere at random without building platforms to get them above high-water mark. The nucleus yard is located at Fort Gadsky, one of the few places where the bank is high.

It is surprising what a large load one of these small launches will carry. The hives can be piled on the bow and stern, and when the interior is filled up and also the roof above, considerable of a load (twenty-five to thirty hives) can be moved at once. We were able to carry fifty or sixty of these three-frame nucleus hives at a time.

Since there is very little jar, there is no need of fastening the covers, and the entrances are quickly closed with a V-shaped screen pushed in without tacks.

Where to Locate Outyards

As this number is devoted to the subject of moving bees, the matter of locating yards is so closely connected with it that a few words on the subject will not come amiss, even though they may savor somewhat of a repetition of former statements.

First, as far as possible apiaries should be located on a stone or gravel road to avoid mud in wet weather. While a team can draw bees and supplies over bad roads, a large amount of time is consumed; whereas with good roads better time can be made, especially if the automobile truck is used.

Second, the yard should be located where moderate shade can be secured, remote from the general highway, and not next to or adjoining a cultivated field. A young apple-orchard, surrounded by pasture, with a driveway leading up to it from the road, makes an ideal place.

Third, the yard should be located two or three miles from any other yard to get the best results; and sometimes it will be necessary, on account of conditions, to put them as close as a mile and a half apart, and sometimes five miles.

Fourth, locate the yard on the farm of some man well known to you—a friend if possible, but always one who is broad-minded enough to know that bees are a great benefit to some kinds of farm crops, especially the legumes, and all fruit-orchards. Never locate on the farm of a narrow-mind-

ed, close-fisted man, and one hard to get along with. Bees may sometimes be a little cross. Their flight may encounter the pathway of teams or stock. Bees may, when short of natural pollen, make themselves a general nuisance around the feed-boxes of stock. A narrow-minded, crusty sort of chap will make no end of trouble; whereas an up-to-date farmer will be willing to put up with some inconveniences for the sake of the benefit the bees may be to him. It is very seldom that bees make any trouble whatever; and to avoid difficulty it is best to locate the beeyard a little back from the roadway, and from the house and farm buildings.

Avoid a clump of woods that leave only narrow openings in places for the bees to enter. Returning bees want a clear wide space for entrance into a grove. If these openings are contracted they will concentrate their flight in places, with the result that there will be thousands of bees flying back and forth at these concentrated points. If teams or cattle get into these lines of flight they may be stung. Apiaries should be located so that the bees may have a free and unobstructed entrance to the yard from all points of the compass. A piece of high ground is better than low ground, both on account of danger of floods in the spring of the year and on account of the fact that the flight of the bees will be above teams or stock on lower ground. Orchards are usually located on high ground to avoid frost. As bees are a direct benefit to the orchard, locations in such places are desirable in every way.

Lastly, avoid a location next to a railroad track. We had one such location, and maintained it for a couple of years; but we were compelled to abandon it on account of fire from cinders lodging in the grass. We had two colonies burned up, and it is a wonder that the whole yard was not burned out.

Where one does not own an automobile it is desirable to locate the yards along trolley lines, so a man can, for a nickel or a dime, go to his yards at very little expense.

That Trainload of Bees en route from Florida to Ohio

ON page 363 of our last issue we stated that we hoped to make an increase of four carloads of bees from one, and we have; but as the weather was very unfavorable, practically all of that increase was made since the first of February, and the greater part of it since the first of March. Mr. Marchant did not have a full carload when

he arrived at Apalachicola last November. A blizzard of snow came on in Medina just about as we shut the bees up Nov. 19, as has been explained elsewhere. They lay in the snow for some four or five days, and a couple more days in our warehouse. All told they were confined for two weeks. The cold blizzard in the North was followed by a hot spell in the South, and the poor bees were compelled to go from one extreme to the other. The loss on the first car down was nearly 25 colonies out of the 300, so the increase was made up practically from 275. Only a few of the entire number were fair colonies. Practically a majority of them were four and five frame nuclei. When the cold weather of February and March came on, it seemed very improbable that much of an increase could be made. No wonder Mr. Marchant had the "blues." But a good flow from black tupelo and better weather conditions helped much. He felt that he must succeed, and did to the extent of making 275 weak colonies into 800 fair colonies and 500 three-frame nuclei. This would make the equivalent of nearly 1000 colonies all told. Mr. Marchant had figured on bringing back three carloads from the one, and in securing enough honey to pay the freight. He not only did this in a bad year, but actually made an increase of four carloads and secured enough honey to pay the freight down and back on the bees. He did not, however, rear any queens. These were furnished him by his father.

The first car started north on the 8th of May, and arrived in Medina on the 13th in splendid condition. There were only about five combs broken down, and they were old ones. All the new combs had been extracted down until there was very little honey left in them, or just about enough to carry the bees through to Medina. The loss of bees was almost insignificant, or about two pounds out of twenty colonies.

Weather conditions were favorable. The next carload of bees started on the 19th, and will arrive in Medina on Monday afternoon the 25th. But the weather is extremely warm at this writing, May 20; and if the second car comes in as good condition as the first, we shall be very happy. The hot weather will mean, of course, that Mr. Deyell, who comes with the second car, will have to wet down his bees much oftener. This will be accomplished as explained elsewhere in this issue. The last two cars will start either on the 26th or 29th. There will be one man to each car, but they will move together. If we can get through the last three carloads as well as we did the first, we shall consider our experiments a big suc-

cess. In the mean time we are awaiting them with some anxiety; for no one can tell what extremely hot weather will do.

As previously explained, we loaded the first car as near the locomotive as we could in order to avoid as much as possible the suffocating gases from the engine in going through tunnels; but in doing this small cinders were scattered all over the hives and throughout the car of bees. A large portion of the cinders sifted through the wire cloth and down into the combs. When we examined some of the hives after being unloaded we found the cells were filled with hundreds of little black cinders. Whether the bees would remove them was the question. A few days afterward we had the satisfaction of seeing the bees taking the cinders out and depositing them on the bottom-boards. At first we were inclined to wire Mr. Marchant to put the remaining ears of bees at the rear end of the train; but we have since concluded that the front end is all right after all.

IMPORTANT REQUISITES FOR MOVING A CAR OF BEES.

In moving bees in car lots it is very important to have all arrangements made in advance. The first thing to settle is the *route*. This should be carefully studied in order to get through freights and direct connection from one road to another. To do this it requires considerable correspondence with the railroad companies. It is not always the shortest cut that will make the quickest delivery. Sometimes it happens that a little out-of-the-way route with through or fast freights and good connections will be much quicker than a more direct route with poor connections. The bees will keep quiet *as long as the train is moving*; but if the car is left standing in a railroad yard for 24 hours during hot weather they may cause serious trouble and loss. When the car is on the way fresh air will, of course, circulate over the hives.

The combs must not be heavy with honey and the colonies must not be strong. A strong colony is almost sure to die before it reaches destination.

It is also very important to get an agreed freight rate from the point of starting to destination. Without this there may be overcharges and no end of trouble.

A special car of suitable size and lumber for platforms must be ordered *before* the bees start. Do not attempt to shut the bees up until a car is secured and on the siding. Next, have your carpenters engaged to put your platform or staging inside of the car. Nothing less than two by four stuff *bolted* together should be used.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.

SPEAKING of lining up against the saloon, the question is asked, p. 400, "Will the old parties *dare* line up?" Good question.

Here's another: "Will Christian men *dare* line up against the old parties if the old parties don't line up against the saloon?"

A HOUSE-GREINER difference of opinion as to "early-raised queens" occurs on page 387. Queens reared by my bees before clover bloom have nearly always proved a disappointment; but since dandelions have become so abundant there have been more successes. Just possibly the Greiner bees may have a better chance for early rearing than the House bees.

OPPOSERS of woman suffrage have objected that, if women had the vote, they would vote just the same as the men. Illinois women refuted that fallacy April 7. Their vote closed a lot of saloons that the male vote would have left open, and made dry some of the larger cities such as Elgin. [Late reports show that women's votes made it possible to put out something over a thousand saloons in Illinois. Speed the day when the women in all the States can vote.—ED.]

M. F. MARKLE tells me that Jews are great honey-users. They make a specialty of certain cakes or cookies made with honey because of their keeping qualities. In general they prefer candied honey for table use. [The Jews are certainly very fond of honey. They dispose of large quantities of honey granulated in the comb, while other peoples regard it with suspicion and will not touch it. The Jews have taught us thrift and finance, and perhaps they can teach us something about eating granulated comb honey. It is really fine eating.—ED.]

THE *Country Gentleman*, p. 838, has a full page on fighting insect enemies, in which the sole reference to bees is in this sentence: "Do not spray trees or plants while in blossom, because of endangering the lives of visiting bees." But that single sentence is magnified many times by a sub-head: "Have a Care for the Bees." This goes to show that intelligent horticultural editors are awake to the importance of bees; and a plea from one of them is worth more than a plea from all the bee-editors on the continent. [Our fruit journals and agricultural papers are now very strong against spraying trees while in bloom. As we have before mentioned in these columns, the fruit-growers are waking up to the importance of having bees pollinate their trees;

and they are letting the fact be known by asking local beekeepers to put bees on their places.—ED.]

F. GREINER, you're dead right in that good article, p. 386, that there is no better time to rear queens than swarming time, a time selected by Nature. But isn't superseding time just as natural? Please remember that in the natural course *every* queen is superseded, and that by the bees. With me, at least (and I suspect other bees are like mine) that superseding practically always takes place after swarming time is all over. [In this connection we venture the statement that an experienced queen-breeder who understands the art of feeding—that is, of stimulating—can rear just as good queens out of season as during the swarming or supersEDURE impulse. Said an experienced queen-breeder who has raised thousands and thousands of queens, "I prefer to have no honey coming in; then I have all the conditions under my control; and knowing those conditions I produce the best of queens." And we believe he is right. But the average queens raised by the average person will not be equal to those raised under natural impulses.—ED.]

FOLLOWING the announcement of the Chicago *Record-Herald* of its ban on liquor advertisements, columns have been occupied with endorsement and rejoicing from men, women, and organizations of all sorts. On the other side appears a defense of the liquor business, occupying a column and a half, by the president of the leading high-class(?) liquor firm of Chicago. The greater part of it is occupied with a plea for compensation from government in case the business is closed up—clear proof that the closing up is *expected*; and when those high in the councils of the liquor power expect the end it cannot be so very far away. [If some of the temperance people would take pains to write a courteous letter to the editor of the daily that comes to their home, protesting against the liquor advertisements, and calling attention to the papers that have already dropped them, it would have a telling effect. It is because Christian people and temperance folks generally do not take advantage of the power that lies in their hands that these liquor advertisements continue. If an editor receives a dozen letters a week from his temperance subscribers, and if he has 100,000 names on his list he would begin to think something would happen if he did not eliminate the offending advertising.—ED.]

BEEKEEPING AMONG THE ROCKIES

Wesley Foster, Boulder, Colorado.

THE LOCAL MARKET.

The local market has quite a supply of comb and extracted honey still on hand, and some will undoubtedly be carried over. The comb honey has not showed any appreciable signs of granulation. No. 1 and fancy comb honey are retailing now at 10 cents in most of the stores. No. 2 honey sells for 8 1-3 cents, but this is somewhat under weight. The grocers are selling the comb honey for about what the honey cost them in trade, or a little less.

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WHY SWARMS GO TO THE HILLS.

Why issuing swarms almost invariably go to the foothills has been a question for which I have not had a satisfactory answer. This is true of nearly all the apiaries located from one to eight or ten miles of the foothills. Do the bees see the mountains and instinctively go toward them, or do they make toward the hills because the early spring pollen and nectar come from them? The foothills do not furnish any thing like the satisfactory pasturage throughout the season that is to be had from the alfalfa-fields, but perhaps the bees size up the situation by the early indications.

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WE WANT IT DRY.

The editor, in the May 1st issue, says that the Weather Bureau reports that an extremely wet season is likely to be followed by a dry one. We have had the wet season here, and we hope that this season will be hot and dry. Of course, we shall not hope it will be dry in the East. But it is this way: Up in our mountains are millions of tons of frozen and packed snow—ice is really what much of it is. The "woods" are full of it up near the timber-line, and much of this will not melt and come down to furnish water for irrigation unless we have hot, dry weather in July and August. We generally like to have one or two good rains in July and August; but it so often turns cold after a rain that we do not wish for much rain in Colorado.

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PROSPECTS UP TO DATE.

To date, May 9, we have had something over seven inches of precipitation since January 1—over two inches above normal. Apple orchards are just coming into bloom, and dandelions have been furnishing nectar for about a week. Some of our colonies have made preparations for swarming, and we are bound to have some swarms during

fruit-bloom. Two weeks more and the danger of alfalfa being frozen back will be over. If we have no freeze, alfalfa should be in bloom by the first week in June. Extra supers of drawn combs have been put on thirty or more colonies, and another week will see more than one hundred more go on. Colonies are at least 25 per cent stronger at this date than last year; but I think there is less honey in the hives.

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CELLAR WINTERING IN THE WEST.

I have received several favorable reports from Colorado and Wyoming of bees wintering very successfully in cellars. We have very changeable winter weather in the intermountain regions, and it would not surprise me to see cellar wintering receive quite an impetus in the next ten years. There is one thing that augurs well for it, and that is that it is easy to keep cellars dry in most places. The most serious trouble I would think would be in keeping the cellar cool enough during some of the warm weather we have some winters.

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WHEN IS A COLONY INSPECTED?

That report of apiary inspection in Arizona brings up again the question of what constitutes the inspection of a colony of bees. To me it seems that the inspection should be thorough enough so that any discernible evidences of foul brood will be found. I consider that an examination of all the combs with brood in them, and all the empty brood-combs for the dried scales, constitutes a thorough inspection. With the small amount of money available in most States for apiary inspection I do not think it advisable to inspect every hive in an apiary unless there is disease found there or unless there is considerable disease in the neighborhood. The competence and ability of the owner will be a factor too. It is not right for the intelligent beekeepers to demand the inspection of all their bees each year by the inspector. I have been called upon to inspect an apiary, and instructed to bring along scissors to clip the queens. It is possible to inspect 100 colonies a day if they are located in large apiaries. I inspected 140 colonies one day, but the owner worked with me, removing cover, cloth, and follower-board, and replacing them when I was through. The average number of colonies inspected in a day by the inspectors in Colorado would probably be 35 to 50.

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.

March borrowed some fine days from April, and in return gave April some of her own kind. The past two weeks have not been weather that makes the beeman glad, and the week now ending (April 30) has been one that would try the patience of Job had he been a beekeeper. Think of the maximum temperature on April 29 being only 50 degrees! There has been a great storm on in the southern part of the State, one of unusual note, in that the rainfall in the interior foothill region was very heavy, reaching a total of $2\frac{1}{2}$ inches in the San Bernardino Valley, gradually becoming less until in the coast region it amounted to nothing. There is no question but that the quantity of honey from the button sage will be less than it would have been had the weather continued fair. That the flow from the white sage, buckwheat, and later-blooming plants will be materially increased in this section seems probable, the ground being thoroughly soaked to a good depth. The blooming period of the button sage may be prolonged, but it has only a short time longer to bloom at best.

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Referring to the editorial, page 281, April 15, "More expensive to winter bees in the South than in the North," I think that there is food for thought on this subject, and our California beekeepers can study it with profit—not alone the exact text, but also the quantity of stores necessary to keep colonies in good condition through the winter with an additional amount sufficient to tide them over through the seasons of dearth. For such seasons come, and invariably they spell disaster to many of our beemen because they provide only for the winter. These seasons of extreme dearth are nearly always followed by a good honey-flow when the bees are apt to be in the worst shape to gather it. That is the condition that prevails in California to-day—a good honey-flow and a small amount of bees to gather it.

There are so many reasons why plenty of stores should be left on the hive that I will not attempt to discuss them all; but the fact remains that, of all things that cause the heavy loss of colonies during seasons of dearth, the influence of lack of stores is the chief cause. Mr. O. O. Poppleton is quoted in the above-mentioned editorial as saying, "My problem is not so much to encourage brood-rearing as to keep it down." In this respect we differ to some extent, for the problem with us is generally to induce suf-

ficient breeding in the autumn to supply young bees to give the bees a good start in the spring, before they are worn out by age. Plenty of stores are advisable under almost all conditions in which the rearing of brood figures. I have followed closely the condition of stores of my colonies through the winter of 1912, and on down the long dry summer, following with an eye to ascertain the condition of the colonies that give the best account of themselves. Invariably I find that the colony having the greatest amount of stores is the one to respond most quickly to the influence of some pollen-producing plant that came into bloom without nectar. To my notion pollen is the greatest breeding stimulant of all. Yet pollen alone in time of a dearth is not sufficient to induce breeding if there is a shortage of old honey. With an ample supply of old honey at hand the response is noticeable immediately.

The same may be said of stimulative feeding. Colonies with ample stores will respond more quickly to stimulative feeding than those with a very limited amount. This is especially true in the winter and fall, for nature seems to spur the bees on to take greater risks in the spring than at any other time of the year. My heaviest colonies during the past summer carried from forty to fifty pounds of honey. These were not only the strongest in stores but also in bees. In the fall I began dividing their stores among those having from nothing to a very small supply. They were also low in bee force. When through dividing I had sufficient stores on all colonies to tide them over until spring, but those from which I took the stores were the heaviest in bee force, and are to-day. It is from them that I am now getting my heaviest surplus. I might modify the above to cover a few colonies that had old queens that were not able to bring their colonies to their best. I have had the quickest and most satisfactory response to stimulative feeding where fed in the open, with a ten-per-cent-sugar syrup. This seems to excite them to breeding in a more natural way, as the active outdoor flight and the thin syrup being carried into the hive, so much like nature's way, gives the entire yard a more natural activity. Much honey is required to produce young bees, and this should be figured on every year when leaving the supply of stores, for the following season may or may not give sufficient stores, and on this account it is always best to be on the safe side.

J. L. Byer,**NOTES FROM CANADA****Mt. Joy, Ont.**

Bees have wintered well in Ontario so far as I have learned from the reports sent me. Although the weather, as I have mentioned, has been generally cool, yet the bees seem to have built up nicely so far. On the 7th of May, toward evening, I noticed two colonies at the home yard with small clusters outside of the packing-cases. Early in the day they had been working on pussy willows. These were two eight-frame L. hives heavily fed last winter; and as they were strong colonies with young queens, no doubt the smaller hives explain the crowding outside. Clustering so early is unusual in my experience; and, needless to say, those two colonies will need attention as soon as any nectar comes in.

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At this date, May 11, hard maple and willows are just opening, and dandelion is making quite a showing on protected southern slopes, so in spite of the cool weather we had earlier, the spring is about on normal time so far as vegetation is concerned. So far, bees have had very few days to gather pollen; for, although we have had little freezing for some time, cool weather has been the rule. In the May 1st issue it is stated editorially that there has been a heavy precipitation of snow and rain almost all over the United States and Canada; but that certainly does not apply to our section in the vicinity of Toronto. We had very little snow all winter, and this spring we have not had a real rain yet. Around London and other western Ontario points I understand they have had heavy rains, so it looks as though that section will be favored again for another season. But we may all get all the rain we need yet; and instead of looking for a drouth, as the editor mentions, we are rather expecting wet weather, as one extreme generally follows another.

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Judging from the heavy correspondence I have received in connection with an article written in another journal, regarding the question of overproduction, there is no question in my mind but that the great majority of the large producers (people who depend upon beekeeping for a living) honestly think that such a thing is not only possible but probable in the near future. Looking at the question in an unprejudiced way, I think it must be admitted that beekeepers are often too anxious to tell of their successes, when, on the other hand, we

do not hear of the failures so frequently. A number have written me, suggesting that it would be a good thing for all concerned, for both producers and prospective bee-keepers, if the occasional large crops produced were never published in the journals. There may be something in this, as there is no question but that some see "easy money" in these big reports, only to find out later that they have overlooked the reports of total failures that go with the calling just as surely as an occasional big yield.

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CRUSTED SNOW DOES NO HARM IF THERE IS VENTILATION AT THE TOP THROUGH THE PACKING.

Some time ago I drove eight miles to the Altona apiary to bring home three barrels of cappings to be melted up. At this yard the snow always drifts over the hives more than at any of our other apiaries, owing to the hives being in an orchard surrounded on three sides by high evergreens. These trees catch the snow just enough to drop it over the hives when it is blown in the orchard, and as a rule the hives will have lots of the beautiful around and over them, when there will be little at the other places. On this trip I found conditions as described. As we had a heavy shower the night before the trip, followed by a cold snap, of course the snow had a very heavy crust over it. Just for curiosity I got a shovel and dug down to the entrances of four colonies, the snow being about on a level with the cases—some 30 inches deep. In front of each entrance there was a hole in the snow as large as my head, it having been melted away by the heat from the bees. I carefully lifted off the top of one case, turned back the packing, and rolled up one corner of the quilt. The bees were very quiet, so I left snow around the other cases, believing the bees were in better condition than they would be if I dug away all that snow with the crust on, for, no matter how careful I would have been, there would have been more or less disturbance, and bees would have left the hives, as the sun was shining brightly. But please bear in mind these colonies all have quilts over the frames, and there is an air-space between the packing and the tops of the outside cases. If sealed covers were over the bees, I should be afraid of snow over them; but with the other plan, it is an altogether different proposition.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.

"SHOOK" SWARMING AND SECTION HONEY.

Mr. G. W. Babcock, Brockport, N. Y., writes that he considers the "Doolittle plan" of shook swarming the best of any so far given to the public because by this plan all after-swarms are done away with, the new colony does well, and the colony in the parent hive on top can be absorbed by the new colony, or it can be set off, given a new queen, and thus made into a good stock colony for the next season. He says that he has obviated the only trouble which he himself and others have found with that plan, by using what he styles a "gauze board," the same being a thin board with an eight-inch-square hole through the center covered with wire screen. There is also a hole near the front end which will allow two or three bees to go down at a time to the colony below. This gauze board is for the purpose of allowing the heat from the colony below to come up into the brood from which the bees were shaken, now on top, so that there will be no chilling of the same, as some find to be the case where enameled cloth is used as was given in an article of mine written some fifteen years ago.

During the past I have used the old Langstroth honey-board which had six openings through it, to correspond to the openings in six honey-boxes, these openings being about one inch wide by five long, the same being covered with window-screen wire; and I have also used a rim of the same size of the hive with the whole surface covered with wire cloth, the same being put on top of a strong colony when it was to receive the beeless brood from another colony.*

Some of these boards were used with a hole in the end next to the entrance of the hive. Then, when working for section honey on the shook-swarming plan, the bees emerging from the brood above could run down through this hole and through the space made by wedging the sections together to the colony below, so that they could fly from the entrance when they go out for the first time to take their airing. This hole in the wire cloth was fitted with a

queen-cell protector, point down, so that it was easy for the bees from above to run down to the colony below. Many would not find their way back through the small hole in the lower end; and in this way, at the end of 24 days, the upper hive could be taken off with few bees and little honey, while these emerging bees from the brood above kept the colony in good strength for storing honey in the sections in much better strength than in case of a natural swarm, as with such swarm fully a third if not a half of the bees in the swarm would die of old age before any young bees would emerge to give strength to the colony.

How did it turn out? The sections were filled and completed as was expected; but, alas! the dirt and bits of cell cappings gnawed off by the emerging brood rattled down through the wire cloth and were mixed in with the sealing of the honey to such an extent that nice clover and basswood honey would not bring the price of good sections of buckwheat, and much more profit was obtained from prime swarms on the old plan than was secured from this third greater yield of miserable-looking sections.

Next I tried making wide frames with tight tops to hold the sections, hoping that enough heat might come up through the space made by the wedges so that no harm would come to the brood should a cold spell come on immediately after shaking. This kept the brood all right, but allowed so large a space for the bees to go up, as well as down, that when all the brood had emerged I had these brood-combs pretty well filled with honey, and the sections not so well advanced as by the old way.

After this I used the open-topped sections, and over these spread a sheet of enameled cloth, the same having a hole in it above the space made by the wedges, the cell protector being used point down, as was done when the wire cloth was used. This plan gave the best results of any thing up to that time, as much more heat would come up through this sheet of enameled cloth by way of the openings, where the open-top sections were used than was the case with the closed-top wide frames. But sometimes there was a loss of brood, as Mr. B. says.

Next I went about perfecting the plan as given in the book "Management of Out-apiaries," which not only makes shook swarming a success, but puts every pound of honey, not consumed by the bees, in the sections, in good marketable shape.

* Here let me say that there is no "absolutely sure" plan of introducing a queen equal to turning her and her attendants loose in a hive of beeless brood so placed over a strong colony. A laying queen taken from one hive to another in the same apiary can generally be introduced by almost any plan; but a valuable queen which has come through the mails is too often missing when the majority of the so-called safe plans of introduction are used. Of course, in such introduction with beeless brood there should be no holes anywhere from this upper hive where a single bee can get either out or in. After six days this hive should be set on the stand it is to occupy.

GENERAL CORRESPONDENCE

MOVING BEES FROM OHIO TO FLORIDA AND BACK

BY H. H. ROOT

In this special number on moving bees a few remarks regarding our experiences in transporting them by rail and by boat on the way to Apalachicola, Florida, may be appropriate. The universal opinion of all those who have had any thing to do with moving bees is that it is the unexpected that always happens. So far as is possible, therefore, it is wise to make provision for taking care of unusual calamities—in other words, to expect the unexpected.

The illustrations in our December 15th issue show how we prepared the hives for the long journey. We use two screen boards in hot weather, one over the hive and the other under it. Being made of $\frac{1}{8}$ -inch cleats, there is nearly an inch under the frames and over an inch above. In cool weather an ordinary deep bottom-board with screened entrance may be used instead of the lower screen. However, it must be remembered that we locate the hives so that every one of them can be reached, and we provide plenty of water, as will be explained more fully later on, to keep down the temperature in case the bees are suffering.

During a conversation with Mr. C. H. Clute, of Palmetto, Florida, who, by the way, has done considerable moving of bees by rail, I found that he places a framework at least three inches deep under the brood-chambers, and he thinks that he gets better results by so doing, as any bees which may die *en route* fall down from the combs out of the way, and there is less danger of suffocation. This takes considerably more room, however, than the plan we use, and we have had such excellent results that we do not see



Fig. 1.—The bees in the freight house at Bainbridge, waiting to be loaded on the steamer.

how we could better it. The two screen boards securely held by crate staples prevent any possibility of bees getting out, and they afford plenty of room and ventilation.

After the difficulties under which we worked in hauling the hives out of four feet of snow when we got ready to load them last November, as reported in the December 15th issue, when the train with its car of bees finally started we fondly hoped that our troubles for this one trip might be over. Our troubles were over, but not so with Mr. Marchant, with the car. In this car we had tried a new

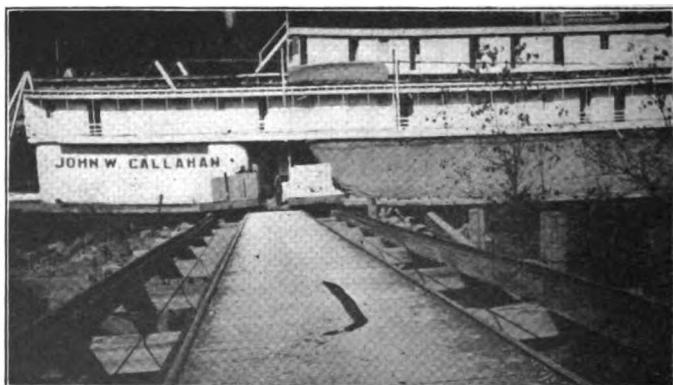


Fig. 2.—The steamer which carried the bees from Bainbridge to Randlett's Landing.



Fig. 3.—Loading the bees on the steamer.

plan; and instead of a solid framework from the door to the ends of the car to sup-

port the rows of hives, we made three separate tiers which were put together before being placed in the car, our idea being that, after the bees were unloaded, this framework could be taken out in three parts and used again when the bees were to be shipped north. The plan did not work well, however, for the framework was not as rigid as it should have been, and there was considerable trouble all along the way, owing to parts working loose. Mr. Marchant wrote afterward that his hands were bleeding most of the time owing to pounding his fingers when attempting to drive nails while the car was in motion. At Birmingham, Alabama, the staging gave way to such an extent that it became absolutely necessary to unload a large number of the colonies in the railroad yard, and make repairs. Unloading a car is no small task at any time; but in the midst of a busy railroad yard, with trains switching back and forth constantly, and with barely enough room for a man to stand between tracks, the problem becomes a serious one. However, room was finally made for the hives to be piled up while the staging was repaired, and, finally, when every thing was ready again, the last lap of the journey by rail was undertaken without further mishap. At Bainbridge, Georgia, the car was unloaded, and the colonies located on the floor of the freight-house, awaiting the steamer. The railroad freight-house being located very close to the river, there was no need of a transfer. Fig. 1 shows a part of the outfit in the freight-house, and Fig. 2 the two tracks for the



Fig. 4.—On the boat down the Apalachicola River, between Bainbridge and Randlett's Landing.



Fig. 5.—Wetting cloths to quiet the bees.

cars, which are pulled up and down by the cables, taking freight to and from the boat. Fig. 3 shows some of the negro deck hands carrying the hives on to the boat. This boat by the way, like many other river boats, is a stern-wheeler, the deck being flat, as shown in Fig. 4, without a railing, so that the work of loading and unloading is reduced to a minimum. The boat can be pushed up into the bank to make a landing anywhere, the great paddlewheel which drives it meanwhile remaining out in the deep water. It has been suggested by some that moving by steamer is a difficult proposition. This is true in case of large lake or ocean steamers in which the bees have to be placed down in a dark poorly ventilated hold; but there is little trouble in moving on one of these flat river boats. If the sun becomes too hot, the canvas side curtains or tarpaulin may be unrolled, as shown in Fig. 3, and if the bees show any signs of becoming overheated, cloths may be wet by dragging them in the water and placing them over the hives to keep down the temperature—Figs. 5 and 6.

Providing water to quiet the bees while being moved by rail is a much more difficult proposition. As stated in the editorial in our last issue, several barrels may be required for a carload of bees shipped, say, a thousand miles. We generally provide one (preferably two) barrels of water at the start, and we fill these at every opportunity, or as occasion demands.

We have tried many different schemes for wetting the bees. At first we used dippers, having the hives arranged so that the wire screen over the top of each one could be reached. This is a slow method, however, and much water is likely to be wasted; for if it is poured on the screen, the bees get too much at a time, and they are likely to suffer before more can be given. We also tried hand spray-pumps

which could be used to direct a spray of water at each screen. By adjusting the nozzle so that the water is carried in an exceedingly fine spray, almost in the form of vapor, there is not much danger of wasting the water, and a few strokes suffice to cause the whole screen to drip. This worked much better than a dipper; but Mr. Merchant prefers to get rolls of cloth which can be unrolled over the hives at will. The cloth, if dry, serves as a protection from the cold if the temperature falls pretty low; or during extremely hot weather, if the bees are suffering, it furnishes an excellent means of providing water, for the water may be quickly applied to the cloth, and the bees take it more slowly than in any other way, so that it does more good. The cold wet cloth over the screen is a great help when bees have to be shipped in extremely hot weather.

MOVING NUCLEI FROM RANDLETT'S LANDING TO FORT GADSKY.

Before shipping the bees north Mr. Merchant formed five hundred nuclei in special



Fig. 6.—Wet cloths over the bees on the boat.

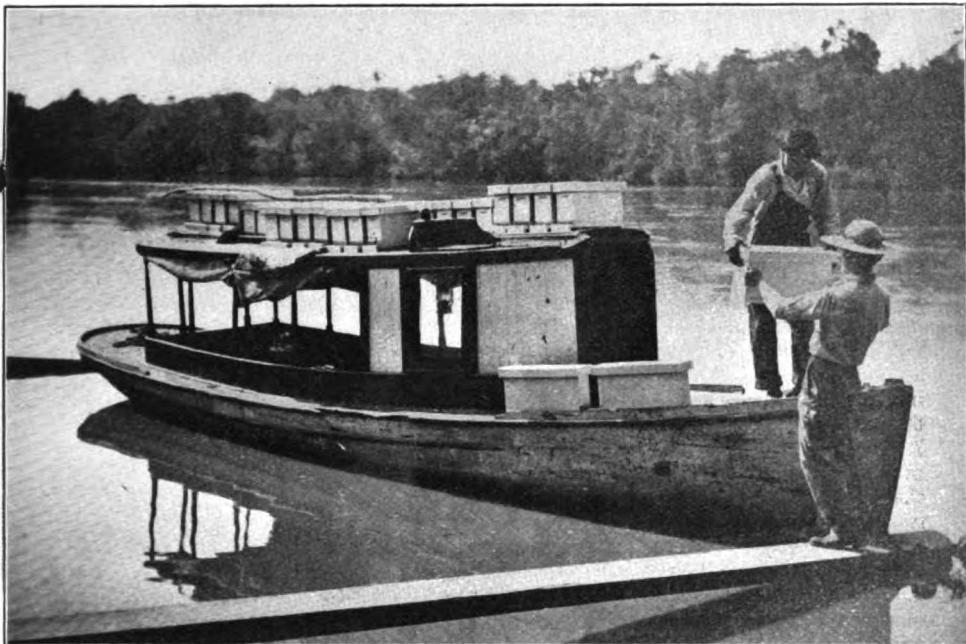


Fig. 7.—Loading three-frame nuclei on the launch preparatory to the trip five miles up the river to the Nucleus yard. The cover picture for this issue shows the boat loaded and under way.

three-frame hives, moving them fifty at a time five miles up the river to a beautiful spot on the bank that is as level as a table. We shall have a view of this nucleus yard in GLEANINGS shortly, for it makes a beautiful picture. Fig. 7 shows the launch partly loaded with these three-frame nuclei. Our cover picture for this issue shows the launch with its load under way.

Of all the conveniences for moving bees—wagons, sleds, train, or boat—the boat, if of the river type shown in the photograph, is by far the most satisfactory. There is very little jar, nothing has to be done along the line of bracing the hives, and protection either from the heat or the cold can be

easily provided. Of course, moving by boat in rough water on a lake or on the ocean is an entirely different proposition.

Moving by rail is the most nerve-wearing of all; and yet, in spite of exasperating delays of trains that are sometimes unavoidable, more real serious accidents no doubt occur when bees are moved by wagon, for it takes a pretty good horse to keep his head if he happens to be stung a few times. We presume more bees are lost when moving by rail; but there are surely more accidents and narrow escapes from actual loss of life when moving by horse and wagon. In the latter instance, if in no other, it certainly pays to prepare for the unexpected.

MOVING IN NEW ZEALAND BY MOTOR TRUCK

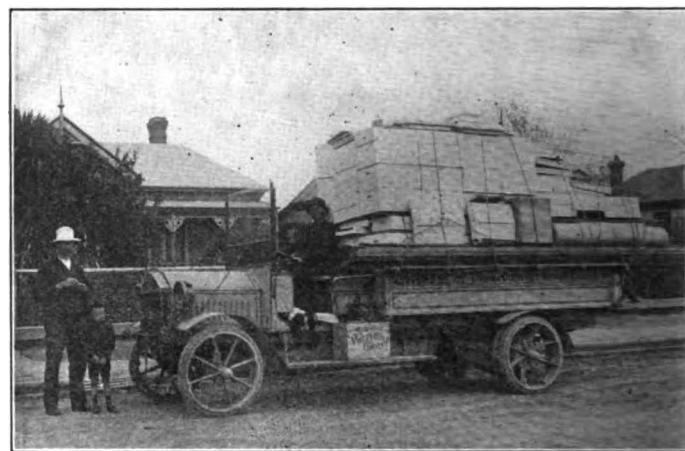
BY E. G. WARD

At the end of last season I owned 35 colonies of bees which were spread out in three locations. About half were at my home in Christchurch, and the remainder in two equal lots about five miles away. One season of this kind of management convinced me that it was not a paying proposition, so I decided to get the bees together in a good country district. I was fortunate in securing a location in a good clover district,

and I have a nice little apiary established. The bees were loaded in the bottom of a motor truck, and the supers, etc., piled on top. The tops of the hives were covered with a frame of wire cloth, and the entrances closed in with the same material full width. I had the misfortune to lose three of the best colonies by suffocation. These three colonies were in nine-frame hives, and very strong; and, although there was plenty

of air on top, it was evident that $\frac{3}{8}$ by the full width of the hive was not enough for the bottom.

The season has been rather below the average, and the weather very erratic. The flow was three weeks to a month later than usual in starting, and weather was not settled till the flow was past. Notwithstanding the drawbacks, I have secured a fair crop. I have increased from 31 to 68 colonies, including 7 or 8 swarms from other bees I had charge of; 14 of these are nuclei, and are in good shape for next season. I have extracted 3200 lbs. of honey, and secured about 5 dozen sections and reared about 40 queens by the Doolittle plan. The six best colonies gave 1121 lbs. of extracted honey. All the queens were introduced by the smoke method, and I am so well satisfied with it that I am not likely to try any other unless



E. G. Ward's bees and appliances loaded into an auto truck ready for a 30-mile trip to a new location.

it should be a very valuable queen, and in that case I would use hatching brood. Every queen was accepted; but in about 8 or 10 cases they were superseded after being in the hive about a fortnight. I use the small nucleus hive (three to Langstroth frame), and have had good results and no trouble.

Christchurch, N. Z.

FROM OLD TO NEW

A Glimpse Backward at Beekeeping in Palestine Years Ago, and Something about Modern Beekeeping in France Today; Moving Bees on Camels and on the Heads of Native Women

BY PH. J. BALDENSPERGER

[We feel sure that the older readers of *GLEANINGS* will not need an introduction to the writer of this article, Mr. Ph. J. Baldensperger; and we feel equally sure that our younger readers will not be sorry to be introduced to this interesting author, traveler, and beekeeper. He has been a constant reader of *GLEANINGS* for 33 years, and from 1880 to 1890 was a frequent contributor to our columns, from the Holy Land. His articles were always welcome and instructive. Since Mr. Baldensperger's residence in Nice, France, we have not heard so much from him; but this article leads us to believe that the pleasant acquaintance of years ago is about to be renewed; and if so, our readers are to be congratulated. The first photo represents the father of this interesting family. One brother was drowned at Jaffa, in the Mediterranean, July 26, 1891.—Ed.]

Years ago, when father Langstroth tried his new bar-frame hives, and the beekeepers were getting away from old methods, my father owned hives of the most old-fashioned shapes, under archways in the castle above the Gardens of Solomon—the Ain Rimmon of the Bible—the modern Urtas, near Bethlehem. The Bedouin incursions forced the inhabitants of the exposed village to hide behind the walls of the Saracenic castle, where a soldier or two lived to guard the water, which ought to have been conducted to the Dome of the Rock, on the site of the Temple at Jerusalem. The pear-shaped hives, prepared in the potteries of Hebron or Jerusalem, were the only ones

then known to us. Born in the Holy Land, we knew nothing of the great strides made in more civilized countries till English and American travelers in the seventies showed us the new methods. Till then, beekeeping consisted in buying terra-cotta hives in the markets, gathering the swarms, and cutting out the honey. A terra-cotta smoker filled with manure, into which a burning coal was introduced, was used, the beekeeper blowing on the manure and on the bees. The hives, placed above each other, and plastered together under an arch to protect them against rain and sunshine, remained for ever so long a period—perhaps centuries—undisturbed.

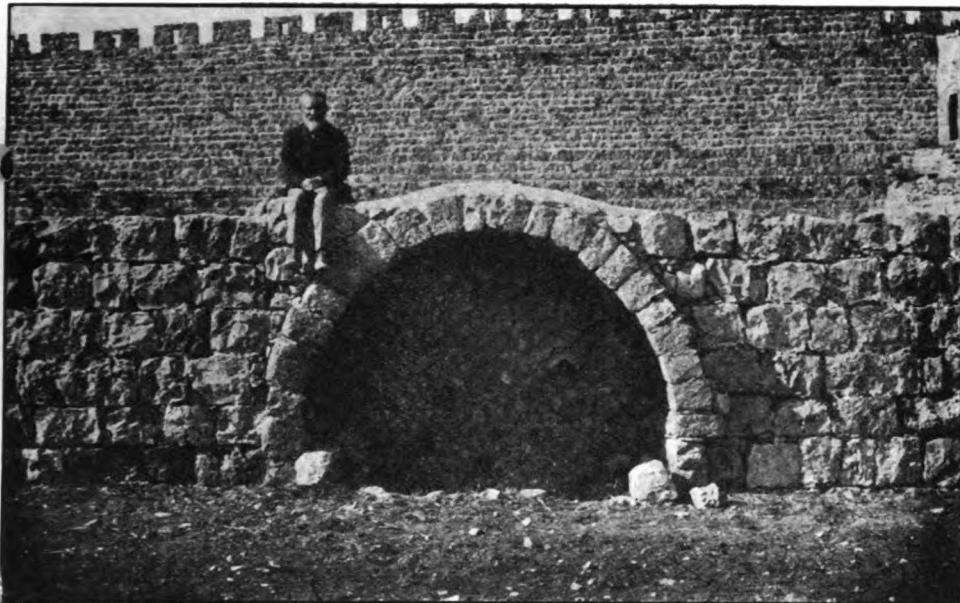


Fig. 1.—The elder Baldensperger sitting on the arch over the old hives in Solomon's castle.

Our first apiaries, in the old castle of Solomon (Fig. 1), stuck up against the walls, had a passage behind for the extracting of honey. To see the bees at work, or to brush away reptiles and other vermin, and inspect them from the outside, we had to climb along the protruding stones of the castle to reach them—Fig. 2. Of course the old methods gave little returns compared with what we get now; but the expenses in the olden days were also reduced to almost nothing.

The arches and the castle were not private property, and no one knew to whom they belonged. Bees have been there for generations, and the owner of the bees was also owner of the whole. The old police agent, a Kurdish cavalryman, did not care nor know who was the real owner, and matters passed along in the most primitive ways. The different archways often had different owners; hives were bought and sold on the spot, and thus changed hands; but still one partner was always the same old man—one who had learned beekeeping in patriarchal ways, and was the patriarch of the whole fraternity. When an archway containing some 70 to 80 hives gave a return of 300 to 500 pounds of honey and about 50 pounds of wax, it was considered quite a good affair. The police agent received a few pounds of honey, and all was said and done till next year's harvest. The swarming season being only work, the police agent cared little for the proceedings. The highly fla-

vored thyme honey of the mountains of Judah (same as Hymettus honey) being from the same flowers, fetched about 95 cents for 6½ pounds. Expenses, except for the transportation of empty jars, and carrying away the filled ones, were greatly reduced, as bees were never moved, stuck in as they were for generations, and probably they will remain there as long as the owners, now fellahin of Bethlehem and Urtas, continue their old ways.

Our attention was called to new methods by the *British Bee Journal*, but was further developed by GLEANINGS about 1880, and since then GLEANINGS and Mr. Root's articles have been in our homes, whether in Palestine, Algeria, or France; also smokers, extractors, comb-foundation machines, either direct or indirect, by way of Paris, are still the only ones used, and will be, till better ones can be produced.

When the bar-frames were adopted the arches were abandoned to the fellahin, and field apiculture was introduced by the Baldensperger brothers. As roads were yet scarce, or at all events led only along the highways to Jerusalem, Jaffa, Bethlehem, Hebron, etc., bees were carried to and fro on camelback. Often the indolent drivers had to be looked for at the fairs in some small town, where also terra-cotta hives were for sale. But the first transportations of movable and bar-frame hives were effected on the heads of women who were also recruited in the market. The first move,

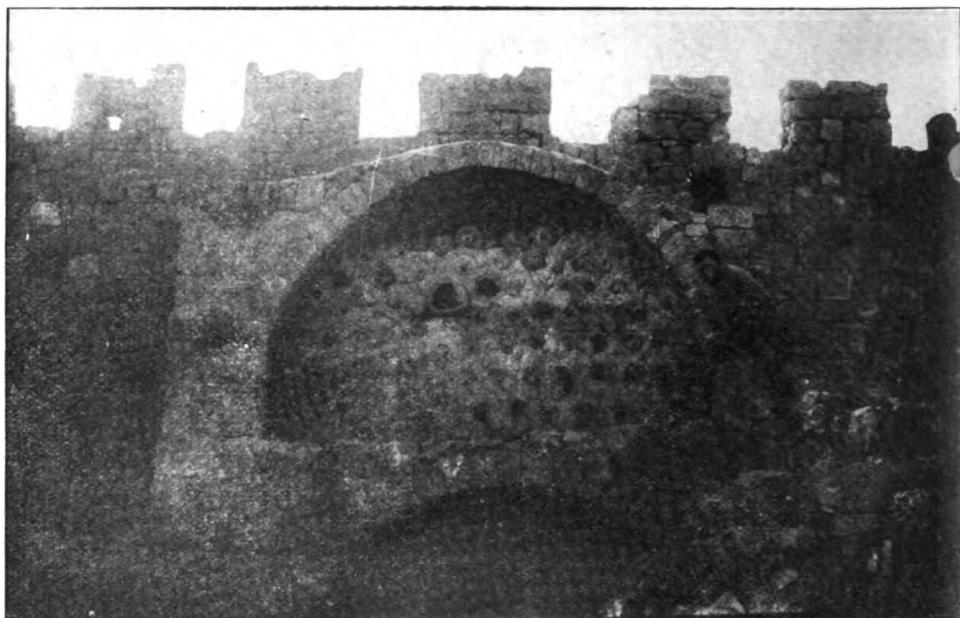


Fig. 2.—Henry Baldensperger (a son of the writer) climbing along the old wall to see the bees.

over thirty years ago, from Ramleh to Jaffa, to the orange-groves, was carried out by women who carried the heavy hives ten miles on their heads. Each woman was paid 10 cents for the work. Later on, camels were hired, and two packages of four hives were carried by each animal, amounting to 500 or 600 lbs. in weight. As a camel goes slowly (about 2½ miles an hour) they were paid between 45 and 85 cts. per night, as it was not only dangerous for man and beast to travel by day, but also bad for the bees, they being in danger of being smothered. Some adventures were related in GLEANINGS away back in the '80's.

When the summer was over, the bees were carried back to the plains in the same way they were taken up to Judea; and the honey in tins holding about 50 pounds was also loaded on camelback. Hives of the old system rendered 5 to 6 lbs. of honey; but the new hives often gave over 100 pounds each, so not only many were scared by the enormous amounts of honey which were extracted, recalling the well-deserved title of a "land flowing with milk and honey," but officials laid higher taxes on hives, and bee-keeping was on the point of becoming paralyzed; and, moreover, the honey market was as yet very unsettled. Small quantities could still be sold at the old price of 85 cts. a bottle, but thousands of pounds found no buyers. All innovations are difficult to introduce; but more so in a primitive coun-

try where the retrograde masses looked on the quantities produced with great mistrust. Thus for months and months the best honey imaginable lay there, and prospects were dreary—no hope for getting any thing in return for the work and expense laid out. With great patience and much sacrifice a market was opened, when some of us resolved not to continue the struggle, and decided to leave the country.

The orange blossom in Jaffa and the prickly pear gave the first harvest in April and May. Then the bees left for the mountains, Fig. 4.

In those happy days for the keeping of bees no kind of bee-disease was known to us, and this greatly simplified the work, provided the queens laid and were in good condition. Wax-moths attacked very vigorously the empty comb; but sulphur fumes during the hot months protected the precious combs. Hornets may be said to have been the great pest from August to the first rains, October and November, when the rains drowned them in their underground nests. If the rains were too late the damage was great.

For many of the above reasons, and some additional ones, I moved to France, where a part of the Oriental plagues have disappeared; but civilization has also its plague. Here are no hornets nor slow camels tramping 2½ miles an hour—no hadjis wishing to kneel down and pray when work was

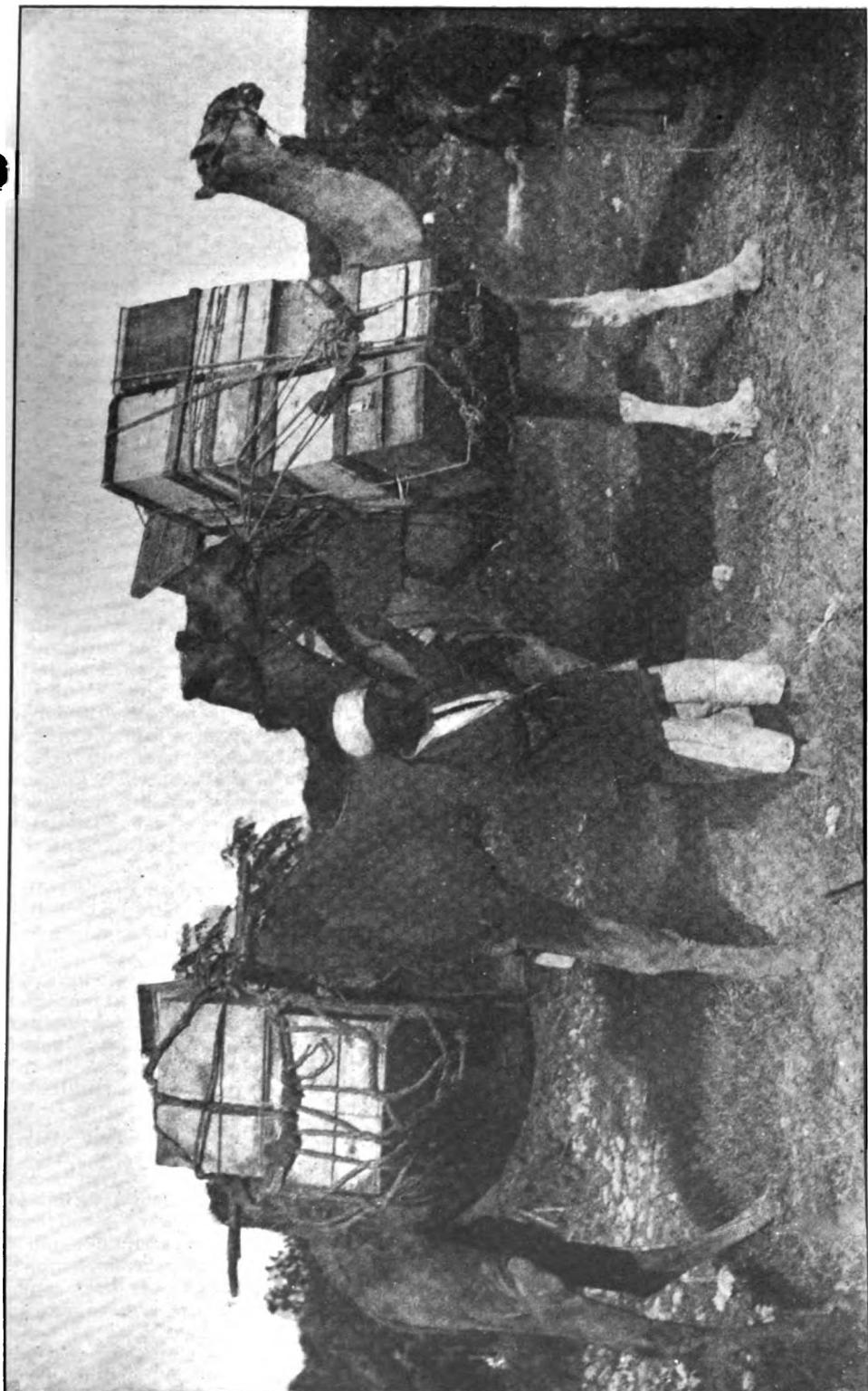


Fig. 3.—Moving bees in Palestine. One of the camels carrying a load of hives and the other a load of honey.

most pressing; but other pests spring up. Instead of the camel the hives are set on carts, Fig. 5, and the bees travel from Nice to the Alps and back again at a greater speed. Honey finds a more ready market, but here another enemy has to be fought. In Mohammedan countries no fermented drinks are allowed. Honey is more freely taken; but here, wine and other drinks take the place of that most precious gift of natural sweet, presented naturally. Our best patrons are vegetarians and anti-alcohol

societies; and as an outcome of the stupid belief that wine gives strength, our bees are persecuted wherever there are vineyards. Peasants are very keen for their interests against every other man; but when a bee hovers over a ripe grape or over injured berries to suck the sweet liquid, exaggeration comes in, and our bees are accused of ruining the whole vineyard. No lectures or demonstrations can be strong enough to reassure the ignorant and show them the folly of their theories. They have no other idea of the natural history of the bee than that their wine production is diminished by the presence of an apiary in the vicinity. I have seen bees crawling about the uninjured

fruit for weeks, yet never touching a berry; but what is that to them? Fertilization of fruit-trees by bees and the like is looked on as a fable or at least not worth the trouble. So in spite of all advantages our hardships are still great, and we look for the wildest sites, "where every prospect pleases," up in the Alps, and there we pick out the best even places to set our hives here and there among the brushwood, stones, and other things, Fig. 6. Very often it is in places where it is so steep you would be tempted "to have to saw off one leg and splice it to the other" (see GLEANINGS, cover, Sept. 1, 1913).

Though some beekeepers can handle their bees with very little smoke, I use plenty of it with a good "Conqueror" smoker, and am sure to be left alone by the bees, as now for years I have not taken a veil to handle the hundreds of colonies spread about in many out-apiaries in the Alps. I believe in plenty of smoke, so I take olive twigs or fig wood, or any that happens to be near that is not obnoxious to the bees, and has no bad odor for me.

We can not boast of being rid of that most



Fig. 4.—Camel carrying a load of bees through the lanes of Jaffa; gardens lined with prickly pears (cactus), and orange-trees behind.

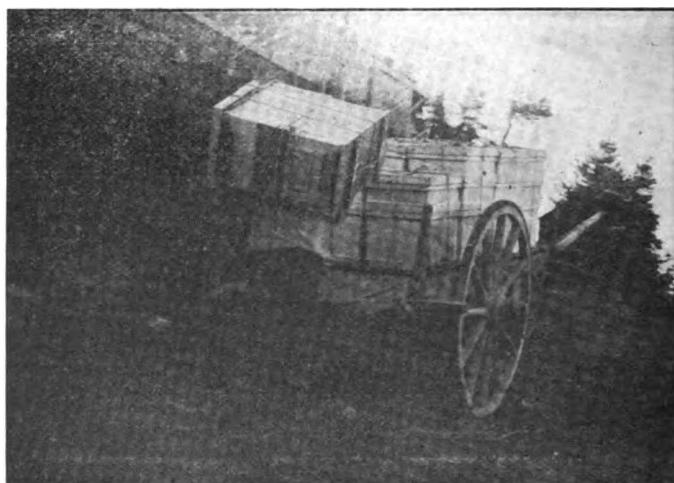


Fig. 5.—Loading hives on a cart in France.



Fig. 6.—The Baldensperger apiary among the olive-trees in the Alps.

hideous of bee diseases—foul brood. Many “fixists” (so we call the old-hive apiarists) are about us; and though by some writers the notion has been spread that the movable-frame hives are carriers of disease, this is true for only the negligent beekeeper. I know well that the contrary is true. For me, “movable” beekeepers are at least very careful, and we can examine not only our hives but every frame—every cell—and put a stop to the pest; at least, every careful beekeeper does it. At the first visit in spring, every frame is lifted out and every cell containing brood is examined. In its earlier stage it is very easy to fight, provided every affected larva is attended to—that is, a liquid or solid of some kind is strewn over the diseased colony, which enables the bees to get rid of it without danger of spreading the evil. By the careful beekeeper, the European or American foul brood can be handled without danger from the next colony, even though you go to work at it after examining the sick one.

Some apiaries are miles and miles distant from the central apiary, itself (in summer) miles away from our home in Nice. In these out-apiaries a bee-tent is set up, and extractors and honey-cans are carried there, Fig. 7. As the tins contain 60 to 120 lbs. of honey, it requires strong and surefooted

mountaineers to carry them down the declivity on their broad shoulders till the car carrying them to the central station is reached.

When honey was first put on the market in earthenware jars and without cases, our ancestors were still proud of their products. Progress has brought clear glass jars—has taught us to manipulate with great care, and to seek the customer sometimes with all kinds of persuasive talks. Staple prices have gone up; life is dearer; yet with all this our honey fetches only a few cents more per bottle than it did—certainly not sufficient to pay extra expenses.

Nice, France.

[We wonder what the migratory beekeepers of to-day would say if they could transport their bees over the country at the rate of only 2½ miles an hour; yet that is the average speed of a camel with a load, not including the stops. Our fast freights sometimes reach a speed of from 40 to 50 miles an hour—twenty times as fast as the camel; but, nevertheless, we fancy that the writer of the following article, when obliged to wait so long for trains, would have been glad to accept camels or any other kind of animals to help him out.—Ed.]

A DISASTROUS EXPERIENCE IN MOVING A CAR OF BEES

A Story of Bad Luck

BY H. F. STRANG

I have noticed accounts of shipments of carloads of bees where everything went off like clockwork; for example, Holtermann's shipment from Liberty, Mo., to Canada; also the Root Company's shipments from Florida to Ohio, and Ahler's shipments from his home at West Bend, Wis., to Louisiana. In view of these reports of success I thought perhaps a report of an unsuccessful shipment by rail, where everything went wrong from start to finish, might interest the reader.

I have kept from one to 100 colonies of bees for the past 30 years; but owing to poor health for a good many years I haven't engaged extensively in the work.

I had been advised by numerous doctors to try the mountainous section of the South; and as I had spent some time in southwest Missouri and Arkansas when I was a young man, I naturally turned that way.

In August, 1911, I left my home in Michigan for a trip in the south; and finally, after looking over a lot of territory, I decided to locate in the southwest part of Missouri a little way from the Arkansas line on Flat Creek, in the Ozark Mountains.

I went home and got ready; but owing to bad weather I couldn't get ready to start before Nov. 15. When all was ready I had to wait nearly a week, owing to sickness. Finally I got the bees loaded, and left our

station on the Pere Marquette Railroad about 42 miles from Grand Junction on Nov. 21 at 2:30 P.M. We had to be pulled to Greenville by the local, as where I loaded was just a branch.

We reached Greenville at 4:30 P.M., and were switched on the Y for the through freight to pick us up; but the best-laid plans of men go wrong sometimes. The through freight, when it got within about ten miles of Greenville, ran into some kind of an obstruction on the track, wrecked the engine, piled part of the train in the ditch, tore up some track, and they told us it would be 12 hours at least before we could get away from there. Instead of 12 hours, it was 38. Then they took us out to a junction on another branch, 20 miles east of Grand Rapids, and we were there ten hours before we could get away. So it was just 52 hours from the time I left my home station until we got to

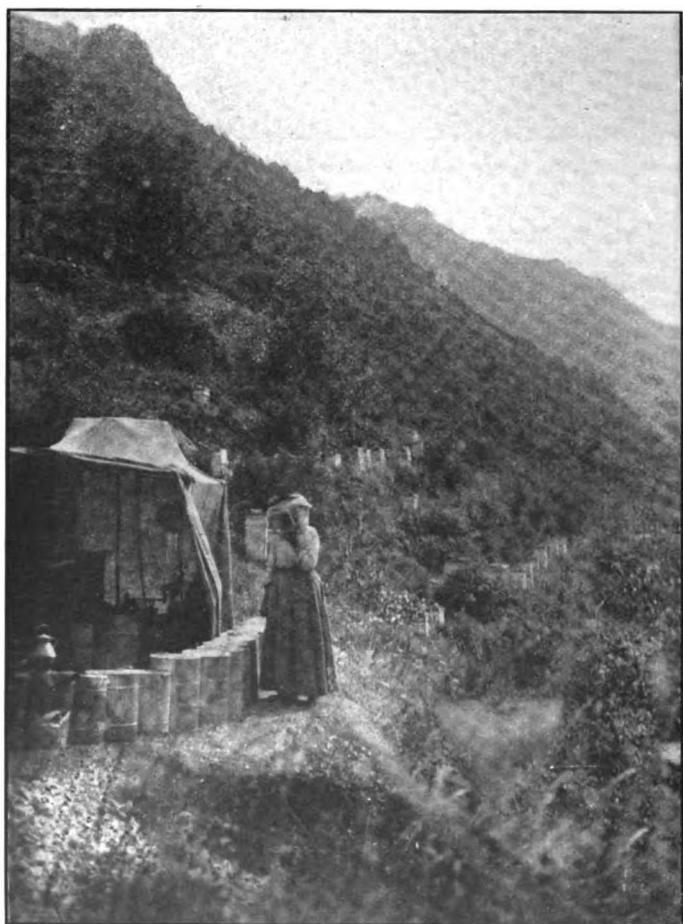


Fig. 7.—Extracting tent at one of the Baldensperger apiaries among the Alps in France.

Grand Rapids. How is that for 42 miles? In about an hour we left the Pere Marquette yards for Chicago.

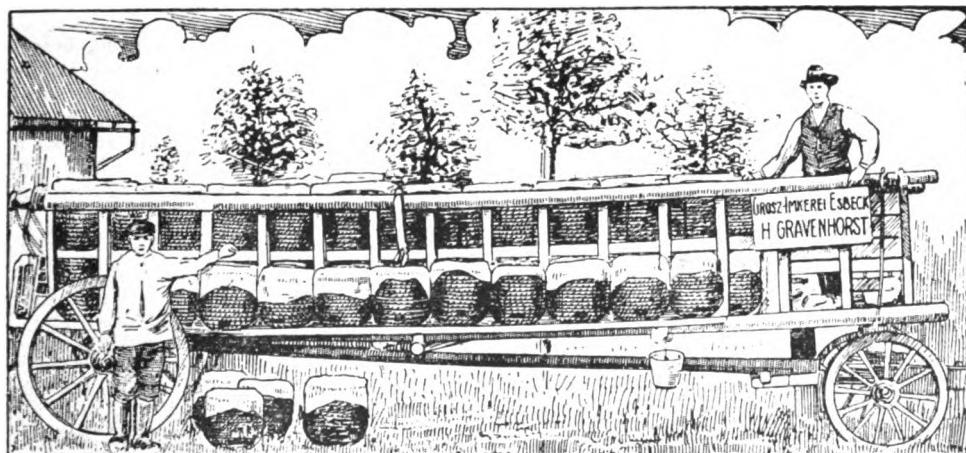
I will say right here, before I proceed further, for fear some one will say I ought to have gotten busy with the telephone, that I was a railroad man myself in my younger days, and I believe that I did every thing possible all along my trip to hurry matters. In fact, I met several of my old chums on my journey who did every thing they could to hurry the trip. Getting out of Grand Rapids in just one hour shows that I left no stone unturned to get out at the first opportunity.

When we arrived in Chieago my first mistake, and my only one, showed up. Nearly all (or all) railroad laws state that each car of bees must be accompanied by an attendant bearing a first-class ticket to place of destination; and the agent at my loading station told me I could put a cow or horse in my car if I so wished, and the railroad would have to give me a pass. I had a very choice Jersey heifer which I wanted to take with me, so I put her in; and the very first thing they asked me when I arrived at Chicago was, "Is your cow inspected?" as the laws of the State I was going into forbade the entrance of any live stock without inspection. I telephoned over to the government inspecting office, and got word that a man would be on hand to begin operations at 1 P. M. At 9:30 the next morning he arrived and started the test for tuberculosis. It takes 24 hours to carry it through, so I was in Chicago just 48 hours. If I had known, I could have had her inspected before I left home, as there was a neighbor of mine who was a deputy State inspector for Michigan.

At 11 A. M. they took my car over to the Wabash yards, and I hardly waited for it to stop and find where it would be switched before I was on the way to the transfer office to have my papers transferred. I had billed my car by the Wabash from Chicago to East St. Louis, and from there to destination by Missouri Pacific Railroad. When I arrived at the Wabash office in Chicago, I was informed they had just received news of a washout and bad wreck on their freight line near East St. Louis, and it would be 24 hours, and may be longer, before they could get a train through.

They consulted maps as to my destination, and told me they could take me to Kansas City and transfer me there to the Missouri Pacific, as they said, and showed me that the Missouri Pacific would take me to within about 30 miles of Kansas City before they took me south to my destination. So they changed my papers to read by Kansas City. I hurried over to the yardmaster's office, and received the pleasant intelligence that a train couldn't leave till an engine arrived, as they had had several wrecks lately, and were badly hampered for motor power. He thought they could put a train out by 4 P. M.; but in place of 4 P. M. it was 1:30 A. M. when we finally left the windy city.

About two hours before we left Chicago it began to snow and blow; and the further south we went the harder it snowed and blew; and in place of being the customary three-days' storm it was three times three, and then some. Well, we kept going until we finally got out of Illinois across the Mississippi River into north Missouri; but there wasn't a division point that we got out of in less than 12 hours, and in one place I remember it was 16 hours before we



Migratory beekeeping with straw hives as practiced by H. Gravenhorst.—From *Der Practische Imker*.



Fig. 1.—D. L. Woodward's home apiary where the colonies are set before being moved to the outyards.

finally got away. When we reached Moberly, Mo., the last division east of Kansas City, it was 9 in the forenoon. They told me they were going to try to start a train for Kansas City at 11:30 A. M.; but 11:30 came, and still no available engine. The Government inspectors had condemned every engine in the roundhouse but one, which had to try to get the mail-train through.

That night some engines got in off the road, so at 3:30 A. M. they started us out with a train crew that had been 12 hours on duty when we left the yards. They got us out about 20 miles west of Moberly to a little siding, and stated that there would be another crew on a special engine to relieve them inside of half an hour. It was six hours before they arrived. They had been on duty eight hours, as they carried an extra engine crew. They put both engines on the train, which at that time comprised two emigrant cars, four cars of live stock, a few cars of through freight, and my car of bees, etc. They finally plowed their way through to Dresser Junction, 30 miles east of Kansas City; then we went on a siding there with all crews tied up on time limit. Extra crews were to come from Kansas City in half an hour; but when the extra engine and snow-plow got within ten miles of us, the engine broke and returned to Kansas City for repairs; but the snow-plow came on through; and as there was a local freight tied up there in the drifts, and as

the stockyard men were keeping the wires good and hot about the cars of live stock, they put the local engine on our train, cut out every thing except cars of live stock and emigrant cars and my car, and started for Kansas City in the drifts. We went to within about ten miles and met another extra coming after us.

We reached Kansas City at 9:00 P. M., with the temperature 9 below zero, and lacking just $4\frac{1}{2}$ hours of 9 days between Kansas City and Chicago.

I immediately hunted up the yardmaster, and he told me he would have my car taken to the Missouri Pacific yard by 11, sure. It was about 8:30 A. M. next morning before they got my car in the Missouri Pacific yards, and at 1:30 P. M. they started south with my cars in a train of through freight, and I arrived at my destination at 6:45 A. M., 227 miles south of Kansas City. The ground there was not frozen. There was not even any frost in the air.

By 8 o'clock the teams began to arrive to take me to my destination, 16 miles over rough mountainous roads. In place of there being five wagons with springs for the bees, only one of them had springs, so I hunted up some baled straw, put a good bed of straw under the hives, got loaded up, and arrived at our destination just a little before 12 midnight, with 9 loads of bees. A second trip was made for the other four loads on Monday. It was Saturday when I

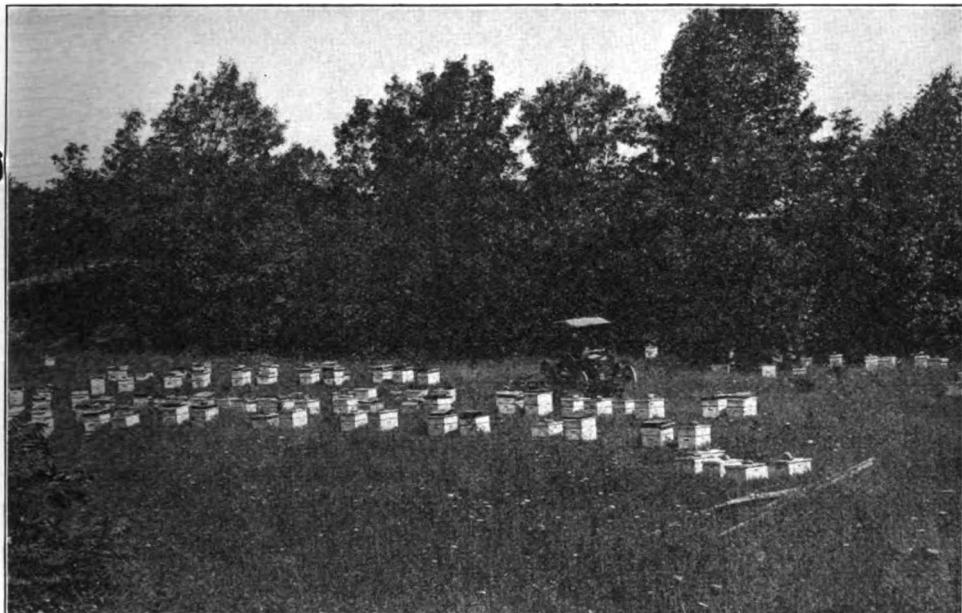


Fig. 2.—Outyard No. 2, near enough to the buckwheat so that it does not have to be moved for that flow.

arrived. They made thirteen loads of the stuff we loaded at the other end on to four loads. I had notified the parties who were to see to getting the teams by telephone from Kansas City when I left there. When I finally got them unloaded I found over a third of them dead, and the rest might as well have been; for all through that storm, of course, every bee that broke the cluster was a dead one.

But, thanks to Mr. Ahler's schooling, in all the shunting (and, of course, rough usage they passed through) never a hive left its place an inch, nor was a cover loosened, nor did a thing of the kind go wrong. That storm, as nearly as I could tell by reading and talking with others, passed but

little if any south of the Missouri River. The bees that were left had a good flight the third day after I got them to their destination. It stormed until the snow was 18 inches on a level, and we had eight nights when the temperature went from 8 to 17 below every night. The old-timers claimed that we had the coldest winter and the most snow that had been experienced for years.

Instead of natural pollen in February it was the last of March before we had any; and then, to cap the climax, we had the driest summer here they had had for 25 years. The bees got hardly a bit of white honey, and the source of the fall flow all dried, so I have had to feed.

Clio, Mo.

MIGRATORY BEEKEEPING IN NEW YORK STATE

An Auto Truck for Moving to Buckwheat Locations

BY D. L. WOODWARD

As I practice migratory beekeeping, no doubt some of the readers of GLEANINGS will be interested to learn the way in which I manipulate my apiaries.

As I bring all of my bees home to winter in my house cellar, I will start in the spring with the bees all at the home yard, Fig. 1. About half of my bees are shown in this photo, the rest being set out near the cellar. to remain there until time to remove them

to the outyards. The photo was taken the day after the first supers were put on. If I could have waited until later I could have shown more supers, or I might have carried out several hundred empty supers and placed them on the hives while the pictures were being taken; but I am not so fond of work as that.

In this locality we take our bees from the cellar from the 1st to the 10th of April.

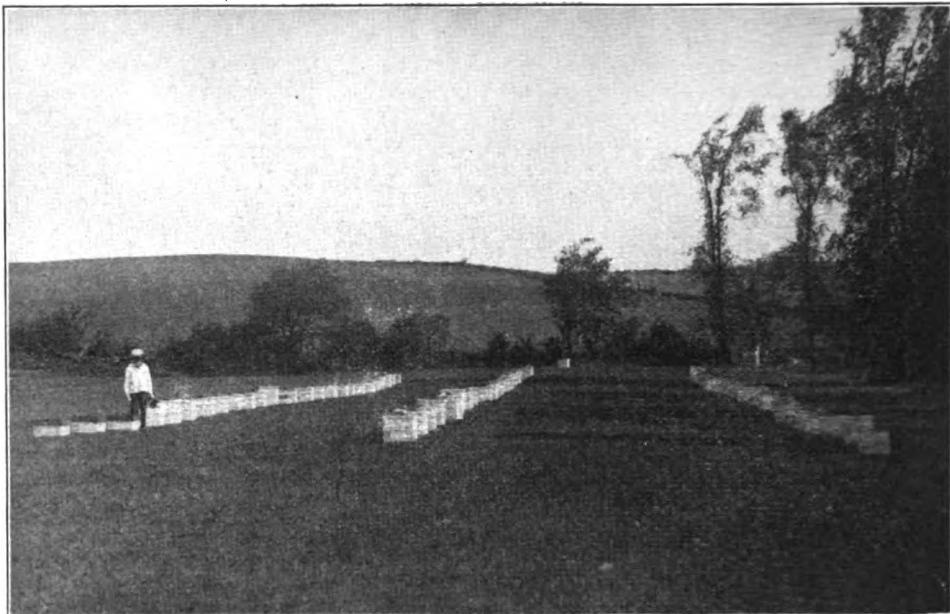


Fig. 3.—D. L. Woodward's bees moved to their temporary location to catch the buckwheat honey-flow. Hundreds of acres of buckwheat surround the yard in every direction.

Those that I expect to leave at the home yard I set on permanent stands; the rest, which are to be moved, are set near the cellar, to save steps.

As soon as the weather conditions are favorable we go through all the colonies, clipping the young queens and making out new record-cards. These cards or tags are made of boards sent out with new hives for division-boards; and as we do not use many of these division-boards we make use of the lumber by cutting the boards in pieces four inches long for use as record-tags. These tags are tacked on the rear right-hand corner of the hive, and the record is kept with a blue leadpencil. The whole season's record can be kept on this tag by writing compactly and abbreviating where possible. Some beekeepers I have noticed keep a record on a similar tag, or piece of cardboard, but place it under the cover of the hive; but this necessitates removing the cover whenever one wishes to look at the record; and, besides, there is a great chance of the tag being mislaid or lost. Some others prefer to keep their records in a book; but that is cumbersome and slow. With my method the record is always at hand, and after a while one learns to know the condition of each colony in the yard almost by heart.

The first record to be put on the new tag is the age of the queen. This is taken from

the old tag before destroying it (of course the tags will become weather-beaten during a season, and the writing will be rather indistinct, and on this account we prefer to make out new tags each spring). The first record would read "Q 1912 C," C meaning clipped. If a later reading on the old tag states that the bees have swarmed, then we know that there must be a young queen there to be clipped. If there is no record of a swarm we skip it, leaving it to be looked after when all the young queens are clipped. After the young queens are clipped we proceed to go through those that have been skipped, in order to ascertain if the old queen has been superseded or not. At this time we also note on the tag the condition of the colony, whether "*strong*," "*medium*," or "*weak*." Later in the season other things are recorded as they come along, such as "Swarmed J. 7," "Queenless Jy 1," or "Short of Stores Oct. 1."

All this work we like to do while the bees are at the home yard; but it is not always possible to do so, as we want to get the bees moved to the outyards, and get the supers on before the swarming fever is started, as we find from experience that it goes a long way toward preventing swarming. About May 15th we move the bees to the outyards, after first moving the supers there ready to be put on when the hives are opened up.

After the white-honey flow is over, which

is about July 20, we move the honey home to extract. By this time buckwheat is coming into bloom, and we start at once to move the bees to the buckwheat locality, which is about six miles from our home yard, leaving our white honey to be extracted after the bees are moved. In order to do this, one must have plenty of supers with drawn combs. Fig. 3 shows the bees in their temporary yard, with hundreds of acres of buckwheat in every direction. In the back row there are three hives with the moving screens still on them. These screens are made in the shape of a telescope cover, with an inch-square cleat on all four sides of the inside of the rim, and rest on the upper edge of the hive, the top being covered with wire screen. The entrances are closed tight with a strip of board dropped into metal slots which are nailed to each side of the bottom-board. With our equipment it is not much of a trick to move bees, as our hives are all ten-frame Langstroth, well painted and sound, so that we are never troubled with leaks. Our truck platform was built to carry 33 hives which fit snugly, so that there is no jostling on the road.

Yard No. 2 is located at the edge of the buckwheat belt, so that they do not have to be moved for the buckwheat-honey flow.

During the fore part of October the colonies are all moved back home, and the season's work is finished as far as the bees are concerned.

In 1912 I purchased a 45-horse-power Fiat chain-driven auto and converted it into a truck to haul my bees and honey. (See page 213, April 1, 1913.) For that purpose it proved quite satisfactory, but rather expensive. It carried the bees without any jarring to speak of, and did it quickly. For light work it proved too expensive, so in 1913 I purchased a small car for running about to outyards, etc., and for retailing honey. I had a covered box built to fit on behind the seats which will hold 500 lbs. of honey put up in pails and bottles. This is about all that I can sell on the public market at Albany during market hours. Here I make such a display as is shown in Fig. 4. The beauty of selling on a market of this kind is that there is no delivering to speak of, as each customer carries his honey home.

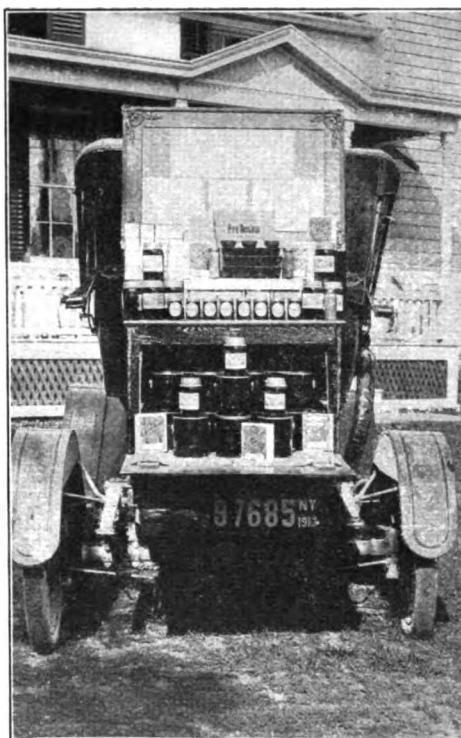


Fig. 4.—The light car used for selling honey at the public market in Albany.

I use a five-pound friction-top pail lithographed with a red background, with gold and black lettering. I find that such a pail is a great advertisement. Ofttimes people will send to the market by a neighbor or their children for a pail of honey, with the instructions to be sure to get it from the man with the red pails. I also use glass bottles holding six ounces, which retail for ten cents, and pint jars for which I get 25 cents. The pails retail for 65 cents.

I have educated my trade to take my honey in pails granulated, but I always have it liquefied in the glass, as it shows off to so much better advantage. I would advise all producers of honey to encourage the use of honey in the granulated state, by all means.

Clarksville, N. Y.

GETTING STUCK WITH A LOAD OF BEES IN LOUISIANA

BY G. FRANK PEASE

Some time ago I had occasion to take an automobile load of bees 21 miles to another location in Louisiana. There were 56 colonies in the load, and they were moved be-

fore the clay roads became dry after hard rains. The truck went down at one place, and we had three hours of hard work to get the wheels planked up so we could get out;



Moving 56 colonies by auto truck in Louisiana.

but we made the trip successfully, and the bees soon settled down to work.

Although it was in the latter part of September we hauled the honey also in this truck. There were two loads of over 5000 lbs. each. This honey was so thick that it would hardly run through a large molasses-faucet, even with a hole in the top for air. I had an old valve from an automobile tire that just fitted in the air-hole, so I took the air-pump and pumped in a pressure of air, and in this way the honey was forced out as fast as it could be handled. The honey is so thick that a chicken nearly full-grown which jumped into a pan partly full of dirty

honey could not get out, although only her feet were covered.

A good way to paste labels, that beats a brush all hollow, is to take a plate of window glass and put a small spoonful of paste on it. Place a label on the paste and draw it along the glass and over the edge, which scrapes off all surplus paste, and makes the label adhere tightly. Several labels can be pasted with each little dip of paste, and as quickly as one can draw the labels over the glass, for the pressure holds the label tight to the glass as it is drawn.

Marshall, Mich.

SHUTTING OUT THE OLD FIELD BEES BEFORE MOVING

BY THEO. LEE

The plan of shipping bees to the South for wintering and for increase has been tried by a few Utah beekeepers. A Northern Utah beeman wintered some of his bees in Southern Nevada in the winter of 1912, and shipped them back in mid-summer,

1913. In shipping them back home, however, this beeman did one thing which it seemed to me is especially worth recording. Empty supers with wire gauze were nailed on the top and bottom of each hive. The bottom supers were nailed on in mid-day

while the old bees were in the field. This, of course, left only young bees and brood in the hives to be shipped.

He had taken 250 colonies of bees to Moapa, Nev., in the fall of 1912. He made 275 nuclei, raising his own queens. He placed the nuclei by the side of the old colonies and removed the frames with young bees and brood from the old colonies, and left the old queen and field-bees on the old stand. He had a shallow super-rim with wire gauze nailed on top, and a similar one under the bottom. He left a bee-space between the bottom super and hive till ready

to ship, and then slipped the hive so as to close the entrance. He nailed the supers on and shipped to Southern Utah. They came through in a cattle-car, reaching Utah July 1, 1913. There was practically no loss of bees, and they made a fine record for the rest of the summer. They did better than bees shipped from Southern California at the same time and to the same locality.

It is the old bees that make trouble on the way, and most of them do not survive the journey.

Spanish Fork, Utah.

CAN BEES ON LOOSE HANGING FRAMES BE MOVED WITHOUT FASTENING THE FRAMES?

BY E. S. MILES

I once supposed that loose hanging frames would require secure fastening ere they could be safely hauled around by wagon, and that belief came very near making me a user of the Hoffman frame. I soon found, however, that, for this locality, the Hoffman frame is almost immovable except on hot days, so I went back to the loose hanging frames, thinking it better to have a frame I could use, even if I had to fasten them some way, if it became necessary to move. Well, when I came to move, as most people do some time in life, I had about 185 colonies on loose hanging frames. I had about 25 miles to haul them by wagon, and I expected it to be a great job.

I myself had to go March 1, leaving the bees to move later when time to set them from the cellar. This necessitated a drive of 25 miles to set the bees out; and as we thought best to let them have a fly once, we had to drive up one afternoon and set out enough for two loads. (The people who bought the place were afraid of bees, and did not want us to set them all out at once.) We found it took the next day to get them out, fasten the frames and have the two loads ready to load in the evening so we could start back early on the morning of the second day. It thus took us about 2½ days to make a trip and get two loads which consisted of about 70 to 80 colonies. In order to fasten the frames we bent or kinked some stiff wire which we inserted between the bottom-bars, tipping the hive up from the bottom to do it, an assistant smoking the bees up out of the way so that it held the bottom of the frames from swinging. This kinked wire rested on the bottom-board, with each end bent up to spring against the sides of the hive. This

held the bottoms of the frames nicely, and the tops we stayed by a $\frac{1}{4}$ -inch strip of board across each end, a small nail being shoved through it into the top-bar of each frame. This worked all right, but it was also back-breaking work, and took about half a day to fasten up 75 to 80 colonies. We might have considered it a success, except that circumstances rather forced us to cut some corners.

By the time the roads were good for hauling, it was getting rather late for setting bees out; and as we were not there we could not open the cellars at night to ventilate; and so when we went on our second trip we found the bees becoming very uneasy. The cellars were warming up; and as it was warm, and the soft maples in full bloom we decided to set the bees all out that trip.

The next day was warm, and there was a strong south wind so that it was not fit to set bees out. However, we felt it necessary under the circumstances to get them out of the cellars, so we set the rest out any way. The wind and consequent drifting of the bees made us longer in putting them out, so it was too late to fasten frames unless we waited over one day for the purpose. The weather looked threatening, so we determined to try two loads without fastening the frames. We did this with considerable foreboding, and only the fear of getting held away from home by bad weather, and having to haul over bad roads, and the desire of the people to have us get the bees away, caused us to take what we considered at that time grave risks from loose combs. Imagine our agreeable surprise, however, on unloading at home, to find no injury whatever to most of the combs. Those in

the lighter and older hives had not moved at all to speak of; and the few heavier and newer frames that slid over to one side of the hive did no injury at all. The bees simply clustered at the empty side. One hive we overlooked till fruit-bloom, and found the combs over to one side; yet that colony was thriving, and had about as much brood as any other. We moved three loads this way on common hayracks, with a little hay under the hives, and lost no bees, broke no combs, and no queen was killed. People around here said, "Those people will ruin their bees hauling them so far. The combs will all break down."

That was seven years ago; and since then we have kept outyards, moving bees each spring and fall.

Now, if the manufacturer of hives could see the hives with combs in as the farmer with a few hives invariably has them, I don't know whether he would attach much importance to the *kind* of frames. It seems to me he *might* decide against frames of any kind. I have picked up quite a lot of hives from farmers through the country, in the last 20 years, and I have yet to find my *first* one with straight combs *built* in the frames. I have found only one or two that were enough in the frames to enable me on a hot day to pry around so as to get the combs

out at all, and they had to go back just as they came out, being too crooked to be interchangeable. Last year I bought one with the dummy in the middle of the brood-chamber and four frames on *each side* of it!

I am giving my experiences with loose frames as above for what it may be worth to the beginner. If you think you must have self-spacing frames to haul by wagon, in any locality where propolis is reasonably plentiful, you are mistaken; and I consider the loose hanging frame much more desirable for real practical honey production, where time and labor must be used to best advantage, and it is hardly necessary to add that we never think of fastening a frame, and have never had a dollar's damage from moving. We usually lift the covers, especially of the heavy hives, after moving; and if the frames are slid around a little we straighten them up; but it does not injure brood, bees, nor queen to have them do so. We have moved bees twice in August, when propolis was thinnest, without fastening frames, and no injurious results followed. I would not consider a self-spacer necessary for any wagon-hauling reasonable distances or on reasonably good roads. Our hives are the regular dovetailed, with metal rabbits.

Dunlap, Iowa.

SOME TRIALS AND TRIUMPHS IN MOVING BEES

BY RAY C. WILCOX

My first experience with bees was during the summer of 1906, when I attempted to care for five colonies owned by a neighbor who was more afraid of them than I. The neighbor had a smoker, a pair of gloves, and a veil, as well as a few empty frame hives for use at "swarming time." I was not just sure when "swarming time" was, but had heard that bees swarm, so I cleaned up the hives and waited. At last a fine swarm issued, and settled on a large limb of a valuable apple-tree. The owner declared that the limb must not be cut, and that the bees would have to go. Thereupon I improvised a swarm-catcher in the shape of a large pail, which I held under the cluster while the owner gave the limb a vigorous shake. Most of the bees fell into the pail and were immediately thrown on a cloth in front of the prepared hive which they entered.

If more swarms issued they escaped unseen; but the bees interested me; and, besides, gave a neat surplus of honey, considering the effort expended. I decided that

I must have some bees of my own, and that decision was developed into a resolution when I found that one of my most intimate friends was interested in bee culture, and had obtained several copies of GLEANINGS. Some of the latter I borrowed, and forthwith became a real beginner.

In April, 1907, I bought four of the colonies I had tended the previous summer. As they were less than half a mile from my home I had no great difficulty in moving them, although at the time it seemed like a great undertaking. In reality it proved quite simple. I closed the entrances one evening with screen wire, and placed the hives in a spring wagon. A few minutes later they were safely placed on their new stands.

As much of my time when not in school was taken up on the farm of my father, my growth as a beekeeper and the increase of the bees were slow; but by the spring of 1910 I had accumulated about 20 colonies. My friend referred to above had a few more. As we were but a few miles from a good buckwheat location I proposed that we

move our best colonies to the better range after the clover flow had passed at home. Accordingly, in early August I selected ten of my best colonies, and, with the help of my friend, screened up the entrances, which were $\frac{1}{2}$ by 12 inches. This was done in the evening, as soon as the bees had gone inside. By nine o'clock we had loaded the hives which had no ventilation except an air-space above, composed of a super of empty sections. By midnight we had placed them on their new stands without mishap, and they seemed to suffer no harm from their confinement. The night was quite cool, however, and may have saved trouble.

My friend's bees were moved in practically the same way except that we started early in the morning and reached our destination before the sun gave much warmth.

The following year my father sold his farm and moved to another, 35 miles away. I was allowed to remain at the old home to finish my course in preparatory school; and, judging from my experience related above that my 30 colonies of bees could be safely moved in August, I left them until that time.

The friend agreed to help me make the trip as before, which we thought would be accomplished without difficulty, so one day about the first of August, when the weather was very warm, I drove to my old home and stayed with my chum until the next evening, when, after many unforeseen delays, we got the bees loaded, and a little before midnight started on our long drive. From first to last we seemed to have trouble. I know now that many of our annoyances could have been avoided by proper management; but even so I could hardly have made the trip without loss. Morning found us only little over half way home. We decided to drive into a field and unload when we found a convenient chance; but before the chance came, bees began to escape from some of my makeshift hives, and ere long the horses were stung. One was a spirited black, which came near making a deal of trouble. However, my friend, who was driving at the

time, finally succeeded in slipping the draw-bolt and getting the plunging team away from the wagon. The horses were soon stabled in a barn; but the load of bees sat all day by the roadside in the hot sun. We did not get the bees unloaded until the next day at noon. I presume all would have been lost had it not rained, thus cooling the air on our second night's drive. As it was, only sixteen of the weakest colonies survived. A complete account of this trip will be found in *GLEANINGS* for Nov. 1, 1912, page 688. That was written by my companion, and gives a good idea of our troubles on the way. It was surely an experience that I shall never forget; and whenever I think of it I feel thankful to have escaped with as little loss as I did.

The season following my disastrous "move" was spent with a professional bee-keeper, and I should like to say to any one who considers making a vocation of apiculture that there is no better training to be had than a season with a successful apiarist who gives the business end of the work the most emphasis. The next spring, 1913, I decided to begin beekeeping for myself in earnest, so I purchased the only available bees, which were twenty miles away. These bees were in dilapidated box hives; but they were moved late in April without trouble. I started on the trip at about nine o'clock, and arrived at the beeyard in the afternoon. The horses were stabled, given a good feed, and allowed to rest until 9 p. m., when I was ready to start. The bees were confined by placing each hive in a large sack of burlap which was drawn tight at the entrance, so scarcely any bees escaped. The return trip was made before daybreak, and the hives placed on their stands before the sun was up.

While I anticipate more experiences in moving bees, I feel that one can never use too much caution in what is, at best, a hazardous task.

Spencer, N. Y.

A GOOD HIVE COVER

BY C. F. BENDER

I am not much of an inventor, finding it easier, usually, to adopt the inventions of others. But, after trying the different styles of hive-covers that could be bought, I found it necessary to invent several before I made one that suited me.

I want a cover, above all things, to be water-light. It ought to lie flat on the hive. For this climate I think it is important to

have a non-conducting cover, as far as possible—one that will hold the warmth of the cluster in the spring, and that will keep the super warm during a fall honey-flow. If one winters outdoors, a warm cover is worth the extra cost for one winter alone. I wintered outdoors for several years, with no packing except that contained in the covers. It is also important to have one that will

last a good many years without too frequent painting. Lightness is a desirable feature, but difficult to get if all the other requirements are filled.



The cover I am about to describe fills the bill completely except as to lightness. Those for eight-frame hives weigh 8 lbs. as I make them. I make a rim of $\frac{3}{8}$ -inch cypress boards $1\frac{1}{2}$ inches deep, the same width as the hive, and $1\frac{1}{4}$ inches longer. The end cleats of this rim are made two inches wide, rabbeted on one edge $\frac{3}{8} \times \frac{7}{8}$ inch. The sides of the rim are rabbeted $\frac{3}{8} \times \frac{3}{8}$ on one edge, so that, when the rim is nailed together, $\frac{3}{8}$ -inch cypress boards will fit inside the rabbits for a ceiling, with no edges or ends of

the boards exposed to the weather. The extra width of the end cleats is allowed to project on the under side to shed water. After the ceiling boards are in place the inch or so of space is filled with packing, and a top of $\frac{3}{8}$ -inch boards is nailed on, with the grain running opposite to those underneath. I put the ceiling boards cross-wise of the hive, because the short boards will not be inclined to warp. Those for the top are placed lengthwise. The whole affair is covered with the best grade of asphalt roofing, or, better, with galvanized iron. The exposed wood is painted. It is rather hard to describe, and somewhat hard to make, unless one has some kind of circular saw. I make them on a Barnes saw, and they cost me about 20 cents each for material. They could be made and sold at a profit for 50 cents each. I would gladly give a dollar each for them rather than use any other cover that I have ever seen.

Newman, Ill.

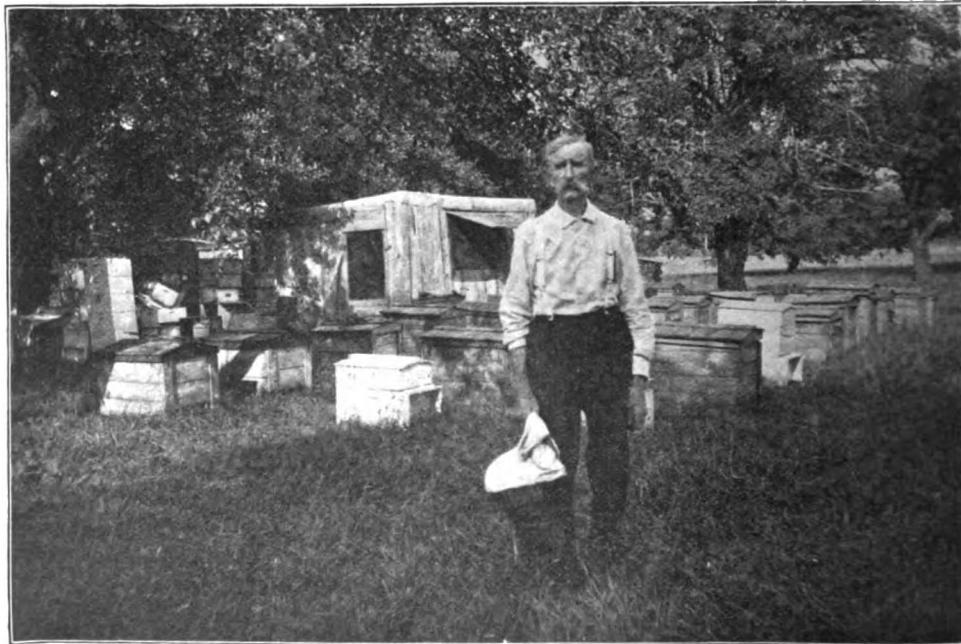
A NEW YORK VETERAN BEEKEEPER

BY ARNOLD IRISH

I send a picture of a beekeeper who has been in the business for 50 years. He and his brother owned the first extractor in this town. This yard contained 150 colonies before European foul brood came, which all

but wiped it out of existence. Italian bees saved the remnant. They certainly clean up the foul stuff all right—at least they did around here.

Lawton Sta., N. Y.



An apiary in which only the Italians survived European foul brood.

HONEY PRODUCTION OF IOWA

BY FRANK C. PELLETT, STATE INSPECTOR OF APIARIES.

For some time past the writer has been collecting records of honey production of the various localities of Iowa. While no such enormous yields are reported as we hear of in distant regions, on the whole the honey production of our State is fairly constant. White clover is the great nectar-producer; and the localities where the flow from white clover is supplemented by a fall flow from heartsease or other plants offer the beekeeper a pretty certain income. Correspondence comes to this office from every section of the State; and the yields average much alike in all sections where there is a fall flow. White clover is reported as the principal source of nectar by nearly every beekeeper reporting. One or two place sweet clover at the head of the list. In addition to white and sweet clover, basswood, heartsease, and fruit bloom furnish the nectar from which Iowa honey is stored. The average per colony, per year, counting good years and bad ones, good colonies and poor ones for a long series of years, is reported as from 45 to 50 pounds from a considerable number of localities. I may say that, judging from the reports, all sections of the State where there is a fall flow may be depended upon to produce an annual average of nearly fifty pounds per colony in the hands of intelligent apiarists. Localities where there is no fall flow report from twenty-five to thirty pounds as an average yield.

The record yield of a single colony, as far as reported, is 290 pounds of well-filled section honey, which was produced by F. W. Hall, in Sioux County. Mr. Hall is now at Colo, Iowa. We have several other yields above 200 pounds. At least two reports are at hand of the production of 300 pounds of extracted honey from a single colony. It is a little surprising that the record yield of comb honey should be almost as large as that of extracted honey, although of course the general average is much smaller. There are few entire failures in this State; and while the big crops reported from western localities are lacking, I am inclined to believe that for a long series of years the producer will fare as well in Iowa as elsewhere. There is, perhaps, as much unoccupied bee range in our State as anywhere, and the beekeeper need not look far for a location. S. W. Snyder of Center Point, reports that two apiarists in his township produced 20,000 pounds of honey last season, and did not occupy more than two-thirds of the range in the one

township. From figures obtained, it is estimated that not to exceed one-tenth of the honey production possible to the State is now realized.

J. L. Strong, the well-known queen-breeder of Clarinda, has kept bees in his locality for more than forty years. Since 1885 he has kept very careful records of the production of his apiary. The average of the seasons in his locality may be judged by the following record of the colony on scales. It will be noticed that not once in the twenty-eight seasons has the colony on scales failed to produce some surplus. Mr. Strong's records for the seasons are as follows, all extracted, in pounds:

1885	195	lbs. ext.	1899	120	lbs. ext.
1886	136	lbs. ext.	1900	22	lbs. ext.
1887	15	lbs. ext.	1901	171	lbs. ext.
1888	96	lbs. ext.	1902	42	lbs. ext.
1889	110	lbs. ext.	1903	331	lbs. ext.
1890	119	lbs. ext.	1904	82	lbs. ext.
1891	19	lbs. ext.	1905	132	lbs. ext.
1892	177	lbs. ext.	1906	74	lbs. ext.
1893	48	lbs. ext.	1907	82	lbs. ext.
1894	29	lbs. ext.	1908	160	lbs. ext.
1895	80	lbs. ext.	1909	74	lbs. ext.
1896	105	lbs. ext.	1910	284	lbs. ext.
1897	85	lbs. ext.	1911	46	lbs. ext.
1898	20	lbs. ext.	1912	98	lbs. ext.

Mr. Strong has devoted his entire attention to beekeeping since 1882. He reports that the heaviest yield in a single day was 18 pounds, gathered by the colony on the scales, July 8, 1903.

Beekeeping has been long overshadowed by other agricultural industries; but land values are now so high that men of small means will be compelled to turn to something requiring a small acreage of land. The beekeepers have recently organized an association, and the meeting at Des Moines was attended with unusual enthusiasm. A great program was outlined, including a chair of beekeeping at the State Agricultural College, extension lectures on beekeeping, an appropriation of ten thousand dollars for foul-brood inspection, better premiums, and better facilities for exhibiting at fairs, and similar things. The prospects are exceedingly good for getting them all.

Beekeeping in Iowa is now looking up decidedly, and bids fair soon to be on the boom. It is easy to make things go when a lot of red-blooded fellows get together and boost. There is room in Iowa for five hundred live beekeepers who will establish a chain of outyards without getting in the way of those already in the business. They will be welcomed by those already here. In many parts of the State local markets are good, and in other sections they can be

worked up, as has been done already by beekeepers on the ground. Some producers write me that their local markets take their extracted honey at 15 cents per pound, and comb honey sells accordingly. Other markets are much lower, however.

Probably at least half of the State is free from disease, and we expect the pres-

ent legislature to provide the means to keep it free and to clean up the sections now diseased. Wintering and disease are the two problems to be met here, and both can be managed by scientific methods. This is no get-rich-quick proposition, but we consider it a safe one.

Atlantic, Iowa,

SOME NECTAR AND POLLEN BEARING PLANTS OF TENNESSEE

BY J. M. BUCHANAN

It is essential that the beekeeper have some knowledge of the flora of his locality in order to get the best results from his beekeeping operations. He should know when to expect a honey-flow, and be able to tell with some certainty how long a flow will last, and what quality of honey he is likely to get from a certain source. Then he will know when to make his increase, when to expect swarms, when to put on supers, etc.

The character of the honey-producing flora and the date of bloom depend on the soil, the season, and the altitude. A list of plants that will be found in one place may not apply at all to a location not very far distant.

In Tennessee there is great variation in soil and in altitude, the latter ranging from about 300 feet in the Mississippi Valley to over 8000 feet in the mountains of East Tennessee; hence it will be impossible to give the exact dates of bloom of the plants in this list. It would seem, from a casual reading of the list, that we had a continual flow from early in the spring until frost, but such is not the case for any given locality. This will be better understood from the following general summary of conditions:

The Tennessee River crosses the State twice, and the Cumberland makes a long curve through the central section, and in these valleys white and alsike clovers, and, in many places, black locust, form the principal source of surplus honey. On the ridges and tablelands of the central and eastern sections, the honey is from poplar, sourwood, and wild flowers of many species. On the plains of the western part of the State, and in the Mississippi Valley, cotton gives the greatest surplus.

The following list is by no means complete, although it gives the most important honey and pollen bearing plants of the State, with their approximate date of blooming.

Soft maple, *Acer rubrum*, February, March. Pollen and nectar. First help to brood-rearing. Valleys.

- Elm, *Ulmus americana*, March. Pollen.
- Sugar maple, *Acer saccharinum*, March, April.
- Sweet sap; nectar, pollen.
- Dandelion, *Taraxacum officinale*, February to June. Nectar.
- Peach, *Amigdala persica*, March, April. Nectar, pollen.
- Plum, *Prunus domestica*, April. Some nectar and pollen.
- Turnip, *Brassica rapa*, April. Sometimes gives surplus where grown for seed.
- Hell ud, *Cercis canadensis*, March, April. Nectar, pollen.
- Apple, *Malus*. Nectar, pollen. Valuable for brood-rearing.
- Black locust, *Rolinia pseudacacia*, April, May. Good yielder of fine honey; slow to granulate.
- Yellow-wood, *Virginia lutea*, May. Some surplus where abundant.
- Poplar, *Liriodendron tulipifera*, May. Heavy yielder. Honey amber, but good flavor.
- Alsike clover, *Trifolium hybridum*, May to July. Almost equal to white clover. Central and east.
- White clover, *Trifolium repens*, May, June. Principal source in central and eastern valleys. Honey white.
- Persimmon, *Diospyros virginiana*, May. Honey dark. Uplands.
- Linden, *Tilia americana*, July. Honey white, good yielder. Central and eastern valleys.
- Sourwood, *Oxydendron arboreum*, July. Uplands. Good honey, almost entirely free from granulation.
- Cow-pea, *Vigna sinensis*, July, August. Some honey, mainly from extra floral glands.
- Milkweed, *Asclepias*, several species, July, August. Some honey; sticky pollen.
- Horse mint, *Monarda clinopodioides*, July. Some surplus in western and central valleys.
- Indian corn, *Zea mays*, July, August. Pollen and some nectar.
- Ragweed, *Ambrosia aptera*, July, August. Heavy bearer of pollen.
- Smartweed, *Persicaria mite*, August. Light-amber honey of good flavor. Lowlands.
- Sumach, *Rhus capolina*, August. Some surplus. Uplands.
- Buckbush, *Symporicarpus vulgaris*, August. Sometimes gives surplus. Honey, amber.
- Cotton, *Gossypium herbaceum*, July to September. Good yielder in western counties.
- Bitterweed, *Helenium tenuifolium*, August, September. Amber honey, very bitter. West.
- Holly, *Ilex glabra*, July, August. Honey, dark. West.
- Boneset, *Eupatorium perfoliatum*, August. Yields heavily along northern border of the State.
- Laurel, *Kalmia latifolia*, July, August. Eastern mountains.
- Goldenrod, *Solidago*, several species. September. Pollen.
- Aster, *Aster*, several species. September, October. Honey, amber; strong in flavor, quick to granulate. Good for winter stores.

Franklin, Tenn.

Heads of Grain from Different Fields



THE BACKLOT BUZZER.

It's no place for Virgil's poetry, Pliny's philosophy, and Aristotle's meditations on the honeybee, when three swarms come off at the same time.

[The above is the first of a series of drawings depicting the life and observations of "The Backlot Buzz," by J. H. Donahay, cartoonist of the Cleveland Plain Dealer. Each issue for some time to come will contain one of these drawings.—ED.]

Another Case where Ignorant Spraying of Fruit Trees Kills Bees

I have had heavy losses in my bees on account of spraying for the past three years. This loss by ignorant spraying is very illusory, in that many small apiarists may ascribe their loss to wax-worms for the simple reason that, when the colonies are reduced by the poison, the wax-worms finish them up very quickly.

My bees got the poison three years ago, in June, just after I had put on the supers, about the 10th; and about the last of the month there did not seem to be half the bees that there were when I put the supers on. In the mean time I had noticed dead bees at only two hives. I thought that these had the paralysis, as had two in previous years that had it. At the weather was warm, and as they all had eight or nine frames of brood which all hatched out, I got 400 lbs. of extracted and about the same amount of comb honey—all collected during the 21 days of August, and all from *Clethra amplifolia* (L.), sweet-piper bush, or white alder. I had seven swarms during this time, and they were the only ones during the year,

The next year (1912) after selling eleven to go into cucumber hothouses I had 35 good strong ones, and two or three weak ones. They were thriving well until apple-trees got into blossom, at which time they began to die off. It was so cold that large quantities of brood died in the cells. About June 1 I united them all into 14 hives. I went away, and was gone two weeks. When I returned, several had gone under entirely until I had only eleven. I then bought two hives of bees to give them bees to build them up for winter. I also bought several queens and two 1-lb. packages of bees. I also had one swarm come to me on Aug. 25. All of these gave me 12 colonies to winter. Every one wintered well, and all were in fine condition when the apple-trees came into blossom. In the course of two weeks they again went down to three. This is pretty discouraging.

Woburn, Mass., April 11. JOHN F. COBURN.

[This is one more link in the chain of evidence showing how bees are killed off by the ignorant spraying of fruit-trees while in bloom. The reports of these cases are so numerous that it would hardly seem there could be any question about it now.—ED.]

The Effect of Climate and Soil on the Color of Honey and Sorghum Syrup

I have been interested in this discussion of the effect that climate and soil have on the color of the honey of the same plant. I believe that the same plant in two different kinds of soil will produce honey of different shades.

I was born on the Black Land country of Texas, and I've seen a great many men there try to produce sorghum molasses. The sorghum cane grows there very luxuriantly, but the finished product, syrup, is black and watery—a very poor substitute for something sweet.

Over on the clay hills and sandy bottoms of the Cross Timbers, only a few miles away, sorghum cane doesn't make such heavy growth, but the sap from it makes a delightfully clear, fine-flavored molasses in which, in the winter time, there will be found fine granules of sugar. This sandy-land syrup is the next best thing to honey.

Rocky, Okla., April 22. KOS HURST.

[That climate and soil do have some effect on the color of honey there can be no doubt. The clover honey of Canada is undoubtedly lighter in color than clover honey south of the Great Lakes. Still further south, this same honey becomes a little darker. The northern-grown alfalfa honey in the Western States is lighter in color than the southern-grown. We have seen this statement contradicted; but the honey-buyers of the country know there is a difference.

For some reason the colors of palmetto honey in different parts of the South vary somewhat. In some places it is light in color, and in others it is a little on the amber order.—ED.]

The Science of the Granulation of Honey

What chemical change takes place when honey candies? Is it as wholesome as natural honey? What is the chemical action of vinegar in preventing honey from candying? Is this addition illegal?

Spokane, Wash., April 24. J. C. MICHEL.

[This subject of the mechanical changes that take place when honey granulates has never been thoroughly investigated so far as we know. Chemically there is no difference between granulated and liquid honey; that is to say, both will analyze the same. Ordinary honey is an invert sugar, while the raw nectar in the flowers is a cane sugar. It will be seen, then, that the bees make a marked chemical change

in the process of ripening and of evaporation. "Honey candies on standing," says Dr. Headen, Chemist at the Colorado Experiment Station, Fort Collins, Col., "because of the ability of its dextrose to assume a crystalline form much more readily than the levulose."

Ordinary honey contains a combination of dextrose, levulose, and water in approximately equal proportions. Some honeys will granulate much more readily than others because they contain more dextrose in proportion to levulose.

We can not say what the chemical action of vinegar would be in preventing granulation, if it prevents it at all. In any event its use for the purpose would be a violation of the national and State pure-food laws.—ED.]

Dry Pulverized Powdered Sugar Mixed with Commom Flour as a Substitute for Natural Pollen

Referring to page 283, April 15, article about artificial pollen, why not try some dry pulverized or powdered sugar, mixed with the flour, say one part to ten parts of flour, and have water near at hand for the bees to drink, so that they assimilate the mixture to the proper consistency of natural pollen? This may seem a foolish idea; but one can never tell until the plan has been given a trial, remembering the old saw, "If at first you don't succeed, try, try again."

Lacrosse, Wis., April 27. THOMAS D. BUDD.

[The idea is worth trying; but at this time of the year there will be no dearth of natural pollen, either north or south. But we can remember the suggestion for next year.—ED.]

Queen Laying Several Eggs in One Cell

I have a stand of bees that, to me, acts peculiarly. Last summer a pound of bees were put in a hive containing full sheets of foundation, and as fast as it was drawn the queen placed as many as three eggs in a cell.

This spring we find in many cells five or six eggs in each. In others there is just one. They are in fine condition, but I can't understand why so many eggs are laid in some cells.

Greenville, S. C., April 18. J. T. BURGARD.

[In your case this condition may be due to the fact that the queen is very prolific, and capable of laying in a larger area of comb than the bees can cover; and rather than go outside of the cluster she places the surplus eggs in cells where she has already laid. The bees usually remove all such eggs except one, which is properly cared for. After your colony becomes strong you will no doubt find that this condition will disappear.—ED.]

Building Combs from Starters in Wired Frames

Is it practicable to use starters in frames that are wired? In building down from starters will the bees attach comb to the wire, or should I use full sheets? Concord, N. C., April 13. W. D. YORK.

[It is a difficult matter to get bees to build combs in a satisfactory manner in wired frames from foundation starters only. If the hive is set level so that the comb will hang straight in the frame the bees will build over the wires; but when they come to them they are very likely to make a row of faulty cells. Owing to the large amount of drone comb usually built on starters, it is more economical to use full sheets.—ED.]

Maricopa County, Arizona, Overstocked

From the report of our efficient foul-brood inspector, Hon. J. P. Ivy, I find that we have 19,858 colonies in Maricopa Co. For some time I have been replying to questions regarding locations, etc., but I wish to say that the apiaries are overlapping each

other already. Our rigid foul-brood law has kept many from locating here with diseased apiaries, and I think we shall be able to exterminate foul brood entirely in the near future.

Phoenix, Ariz.

WM. LOSSING.

Proper Ventilation Removes Moisture within the Hive

I have noticed paint "blister" on some of my hives, but have usually attributed it to the use of poor paint or failure to shellac boards showing excess of pitch.

There may be some difference in the amount of heat reflected or absorbed from the sun's rays by painted and unpainted hives; but ventilation will dispose of internal moisture more effectually than to depend on the walls of the hive to absorb it.

Rocky Ford, Col., March 11. A. S. PARSON.

Enclosing Hives in Cloth Bags to Make Them Safe for Moving

Most beekeepers have a great time telling how to fasten the bees in the hive so that they will be safe under all circumstances. The best way I can find to fasten them is to get for each hive two yards of sheeting; put the ends together, and sew up the sides. This makes a bag. Draw this over the hive and tie the end like a sack of grain. None will come out, n^o, difference how far you move them, and you do not need to close the entrance.

Emerson, Ill., March 17. W. H. H. STEWART.

Borax to Keep Cockroaches Away from Bees

I have found borax the best remedy for cockroaches and ants. It acts rather slowly, however, for it takes about a week to have much effect.

Covington, Pa. H. P. KNOWLTON.

[We ourselves have found borax a good remedy for cockroaches. If scattered around where they are found they seem to keep away after a few days; but it usually has to be scattered around quite frequently. So far as we know, it would do no harm to the bees.—ED.]

Heavy Fruit Bloom; Good Prospects

Bees in this locality are doing finely; very heavy fruit-bloom; also best prospects for a bouncer clover bloom and basswood; super mostly have all been placed on over the brood-nests, and bees have commenced work in them. Bees in this vicinity came through the winter exceedingly well.

Glen Easton, W. V., May 8. JAMES I. LUTES.



Ferguson Whiteside's remedy for backache when moving bees.

A. I. Root

OUR HOMES

Editor

When a man's ways please the Lord, he maketh even his enemies to be at peace with him.—PROV. 16:7.

Dear friends, I have a wonderful story to tell you; and (may the Lord be praised) it is a *true* story. A few days ago a very prettily bound book of about 160 pages came through the mails. A printed slip in the fore part of the book reads as follows:

As a brother-editor I am sending you this book, hoping that you will peruse it, and not only enjoy it but profit by it, and then give it a review in your paper.

FRED ROHRE, Berne, Ind.

The book is indeed "stranger than fiction." I suppose most of you read in the papers (some years ago) or heard something about it at the time, that a temperance worker's home was dynamited by saloonkeepers because he tried to enforce the law. Well, this book was written by the man whose house was dynamited, and who was assaulted and pounded in the streets and in his office; but as he trusted in God he was not so easily scared out of town. As the preface is very short we give it here entire:

The object of this book is threefold:

1. To praise God for victory after a long and bitter war of constant battling between the forces of heaven and hell.

2. To encourage young people to do right because it is right, no matter what people say; for right wins in the end.

3. To nerve temperance people individually to law enforcement, for this, coupled with faith in God, is the key that solves the temperance problem.

As I take it, Bro. Rohrer is a Mennonite; and, if I am correct, the Mennonites are what is sometimes called a non-resistant class of people. They do not believe in striking back, and their motto seems to be to return good for evil. On page 9 we read as follows:

The towns are named after Bern and Geneva, Switzerland, because the early settlers of this community hailed from the land of Wilhelm Tell; and about 80 per cent of the population of Berne and vicinity speak the Swiss dialect to this day.

The above does not say he is a descendant of William Tell, but the book seems to indicate he has inherited the Tell spirit. We clip the following from page 45:

About an hour after the events just told, when I had returned to my office where I happened to be alone, Abe Bagley, who was then president of our town board, came in, first on business, then asked why I had made him go before the grand jury. He had also been seen going into saloons when they should have been closed, and that's why his name was handed in with the rest.

At that time our town officers would pat the saloonkeepers on the back and tell them just to go ahead and pay no attention to us; that ours was just a mushroom enthusiasm which would soon die out; that we had a kind of crazy spell, and would get over it after a while.

I hadn't said many words when the town presi-

dent came into my private apartment, behind the desk, grabbed me around the waist, jerked me off my stool, and knocked me on the floor. Just then the door was opened, and in came some twenty men who had been watching for just this moment.

The above gives us a glimpse of the condition of affairs in Berne, Ind., when this young printer started out against great odds to insist on law enforcement. He tells us of several places where they had a mayor so much in sympathy with the liquor gang that he had a fashion of fining criminals "one dollar and costs" when they came before him for law-breaking. Let me now give you an extract from pages 46 and 49:

Our town president proceeded to drag me out; but before he got me out of my private office I had a chance to get on my feet again and caught hold with both hands of the iron guards around my desk, and I silently prayed to God to keep me from letting go. The man of towering physique who had hold of me again grabbed me around my waist, lifted me off my feet and tried to jerk me loose until my hands were blistered and skinned. Then he took hold of my wrists and tried to work my hands loose from the iron railing, so that both arms were swollen the next morning.

The mob was in a fury, and became impatient. Some cried:

"Bring him out, bring him out; why don't you?"

He replied:

"I can't take him out."

Then others shouted:

"Punch him, punch him!"

Still others yelled:

"Pound him, pound him!"

As he brought his big fist down upon the back of my head and on the neck in rapid succession I silently prayed to God to help me bear it. And he did. Bless your heart, God never goes back on a man who doesn't go back on him. Although I saw the stars fly in every direction at each stroke, they never hurt me a bit. I never groaned, and never uttered a sound during all the time the mob was in the office. The town president hammered away on my head until the town marshal, William Tucker, came and with difficulty forced his way through the crowd and ordered the men all out.

I was reading proofs when the men came in; and as they left I picked up the papers that were scattered over the floor and went straight to my work again. The town marshal was standing in front of my desk and watched me while I was marking mistakes on the proof-sheet. Presently he remarked:

"This is going to be a bad night for you. I wouldn't be in your shoes for a thousand dollars."

"Why?" I asked.

"Oh! they are red hot after you; and they will get you to-night if they can. You'd better go home."

"Well, if they want me they can get me at home just as well as here."

This incident has a bearing on something that comes in at the end of the book. How many Christians have we among us who could stand treatment like that without striking back? Friend Rohrer, it seems, was given grace in answer to prayer to talk kindly and good-naturedly to those who threatened him, and finally knocked him down and pounded him. Of course, those

who attacked him were generally filled up with drink; but the persecution became so great against this almost single-handed temperance worker that his best friends advised him to leave town. Here is an extract from page 55 which shows that we have not only a *hero* in our story but a *heroine* as well.

On the evening before, after the two attacks upon me, friends went to my house to console my wife and be with her. Now, they and relatives urged her to persuade me to stop fighting saloons. But she answered:

"Why, that would be too cowardly to give up a fight because it is growing warm."

"Yes; but they will kill him as sure as you live, and you can't stand it."

Very calmly and deliberately she replied:

"Kill him! Let them kill him if they wish; I've given him up. I'd rather be the widow of a dead hero than the wife of a living coward!"

And that settled it with me. After that I never had enough nerve to act cowardly. With such a woman at my side, what could I do but keep my place on the battlefield, and stay there like an ox between a yoke on one side and an altar on the other—ready for service or sacrifice?

What do you think of a devoted wife who can say to a mob of drunken men, "I had rather be the widow of a dead hero than the wife of a living coward"?

As an illustration of the way in which this godly man stood up before his enemies, see the following from page 75:

"Fred, I came to lick you!"

"All right, just lick me if you think it would do you any good."

He then tried to provoke me into anger and get me into a fighting mood; but I jollied him all the while and tried to keep him in good humor as long as I could. Finally he thundered at me:

"Are you ready?"

"Yes, I am ready any time; are you?" I answered, but remained seated on my stool and let on as if I weren't paying any attention to him, and that, of course, wasn't getting him ready very fast. You see it's hard for a man to work up his fighting spirit to the striking point when you try to make him laugh all the time. Fighting and laughing don't mix very well. It was like pulling teeth for that man to get started in his fight; but he finally mustered up enough courage to raise his big arm and land a heavy blow on my face so that I flew off my stool into a corner like a little squirrel, as he himself termed it.

I wish to call particular attention to that sentence, "You see it is hard for a man to work up his spirit to the striking-point when you try to make him laugh all the time."

This whole story reminds me most vividly of some of my experience in years past when I attempted to render good for evil, and to love my enemies, and to "do good" to those who hated me.

After the saloonkeepers with dynamite had to give up, and the town of Berne was made dry, and good men were put into office, the neighboring city of Portland, Ind., was approaching a wet-and-dry election. They sent for Mr. Rohrer to come

and talk to them, and he told his story substantially as given in the book, and caused righteousness to triumph. At the close of his talk he clenched the nails as follows. Here is what he had to say to the great audience that packed the court-room:

"I see this sounds to some of you like a fish story. But do you suppose that I would make up a story like this when I know that one of the three men of whom I am talking is sitting in this audience and is listening to every word I say? If I wouldn't be telling the truth, wouldn't he get right up and call me down as a bare-faced liar!"

Then everybody looked around, and the men just craned their necks to see where he might be. I asked Mr. Rinaker to arise and tell the audience whether or not he is one of those three men.

Mr. Rinaker arose and addressed the meeting.

"Gentlemen," he said, "I am one of those men, and I can testify that every word Mr. Rohrer spoke is true. He did put me out of the saloon business, and to-day I am glad of it," and went on to tell that he is now in the restaurant business and likes it much better, etc.

That was making a "hit," and it had the desired effect. The next day the legal voters of Portland signed the remonstrance freely, and by Friday following every ward in the city was made dry and the saloons have never returned.

You see he not only whipped the saloon-keepers to a finish, but he demonstrated the possibility of transforming *enemies* into *friends*; and this ex-saloonkeeper actually went with him and sat near him while he spoke and told his story, and then rose up and testified before the great audience as above. Now one thing more:

It might as well be stated, too, that Abraham Bagley, the first man who assaulted me in my office, and who was going to deliver me into the hands of a howling mob, was the architect of the new *Berne Witness* building, just completed and described in the next chapter. I paid him \$500 for drawing the plans and assisting me in superintending the work, for I bought the material for the building and hired the laborers, and kept their time mostly myself, and never had a quarrel with any one.

That illustrates most powerfully the grand truth in the text I have chosen. Friend Rohrer prospered in his printing business, and in his temperance periodical called the *Berne Witness*, until he bought the premises where the saloons had just been carrying on their hellish work. Not only that, he hired the man who (years before) first assaulted him in his office to make the plans for his great printing-office, and to assist in superintending the work. Truly, truth is *stranger* than fiction. On one of the closing pages of the book we are given a picture of this building. To illustrate how God prospered the fearless young printer, read the following which I clip from page 142:

This, the first paper published in Berne, appeared as a seven-column folio, and was printed on an old Washington hand press. A good friend of mine predicted that in a year the name of the paper would be changed from "Berne Witness" to "Berne Quitness;" but instead of doing that it was enlarged to a

five-column quarto, and the force of two increased to three. In April, 1899, it was changed to a six-column quarto, and the force increased to four and soon to five persons. The next year a German edition was added, and continued until November 1, 1901, when the two were merged and issued as a semi-weekly for eleven years. On September 2, 1912, the semi-weekly gave place to a tri-weekly, in which form the paper is now delivered to its readers.

In closing, let me lay emphasis on the wonderful truth taught in the above. It is a grand thing to enforce law and to come out victorious over such a gang as infested Berne, Ind., at the time the story opens. And, by the way, I am afraid there are far too many towns—yes, cities—that are infested and ruled by just such a gang. We have judges who fine a man “one dollar and costs” when his offense should send him to the penitentiary. Well, this matter of law enforcement is a good thing; but, dear friends, how much greater and grander is the victory when law enforcement can be managed with so much love and kindness that even the *saloonkeeper*, perhaps the *dynamiter*, may be made personal friends and set to work in something that is praiseworthy before God and before all good men and women!

One thing more just now occurs to me, showing the Christian devotion of this young temperance worker. At one time there was a discussion as to whether a certain kind of liquor was intoxicating or a temperance drink. Mr. Rohrer called the town marshal and asked to be locked up with him, and one or two other witnesses. He also got the marshal to keep him locked up to see if the liquor made him drunk. He then drank three glasses of what they called

“hop cream.” He said it was a long time before the door was unlocked and he was permitted to go home without fear of being arrested for public intoxication. His evidence was accepted, and the man who sold the hop cream was fined \$75.00 and costs. In a thousand other ways this man Rohrer collected material for his temperance crusade. He studied the laws of Indiana until he knew them by heart, and the expert whisky dealers found out that he was *more* than a match for them.

In closing let me say that the splendid introduction to the book is by that magnificent man and temperance worker, ex-Governor J. Frank Hanly. Lack of space forbids the whole introduction, but I want to give the last paragraph.

Four times the sponsors of the traffic assaulted and beat this man's person. Once they sought to mob him, and once they dynamited the house where his wife and children slept. But his will was unbreakable, his courage unfaltering. He remained throughout it all as loyal to his convictions as the needle to the pole, and as faithful to his purpose as the circling stars in their courses, consoled and sustained by a flawless faith—a faith that whatever might personally befall him, the cause he served would remain and go marching on until God should crown it with victory.

J. FRANK HANLY,
(Governor of Indiana 1905-1909.)

If you wish to help encourage such a man, send 50 cents to the address shown in this Home paper; and may God be praised for this wonderful demonstration, standing out sharply defined before all the world as a vivid illustration of the wonderful truth of my text, “When a man's ways please the Lord, he maketh even his *enemies* to be at peace with him.”

HIGH-PRESSURE GARDENING

POULTRY AND POTATOES IN FLORIDA.

Before you commence to read this I wish you would turn over to page 317, April 15, and look at the picture of a plate of potatoes. I have something more to say about it. When I took that plate of potatoes to town to have it photographed I first carried it into a grocery where I sell my eggs, and asked them how much they would give for such potatoes. They thought that \$1.50 would be about right. I took the potatoes to another grocery, where I also sell eggs, and they said the same thing; but when I looked at the new potatoes they had for sale I said, “Look here, my good friend, if you can get 40 cents a peck for the potatoes you have there, you can easily get 50 cents a peck for mine.”

He told me that perhaps it would be a

good idea to bring him half a bushel. I did so, and they were snapped up almost before I was out of sight. The next day I brought him a bushel, and they were promptly taken in a like manner. Then I brought him two bushels; and every day when I went into the grocery with some eggs, my nice washed assorted Triumph potatoes were gone. Finally the proprietor of the place first mentioned asked me why *they* could not have some of the nice potatoes I was growing. I told him it was because he offered me only \$1.50. “Well,” said he, “nice potatoes are worth more money now. Bring me a bushel.”

The next day they wanted three bushels, and so on until my whole crop of about twenty bushels was all gone. When I first started these nice potatoes the proprietor

thought they could not get 50 cents a peck; but one of his young clerks interposed something as follows:

"Why, yes, we can, Mr. B., for we have quite a few customers who do not care any thing about the *price* providing they have something that is good, and looks nice."

It occurs to me just now that I had better tell you something about the potato market in Bradentown when I arrived there in November. We carried down a few potatoes I had just dug in my garden in Ohio. When those were gone I bought a peck (for table use, of course) in Florida. They were potatoes that had been shipped down from the North. I think they cost 60 cents a peck. Of course, this price includes delivery; and I have sometimes thought that people like myself who do not ask to have things *delivered* should have a little lower price. Well, of these potatoes that cost 60 cents a peck, nearly half of them had to be thrown away. They were bruised, cut with a hoe in digging, and had begun to rot. They were ill-looking and ill-smelling. I went to another grocery, and there found but little better potatoes. Mrs. Root said she had to throw away half of them. By the time my new potatoes were on the market, potatoes from the North were being shipped in, and these were rather better, and sold at a lower price—I think about 40 cents a peck.

Do you inquire why potatoes in Florida should be 60 cents a peck when they are digging them here in Ohio at 60 cents a *bushel*? Well, there are several reasons. Potatoes are bulky, risky to handle, and if sent to Florida during the hot weather, especially right after being dug, they are liable to rot. This does not explain, however, why we should find so many potatoes down in Florida that are cut or otherwise injured in digging. Mrs. Root declared that *somebody* sorted out *culls* and then charged consumers 60 cents a peck for them. Some of you may ask, "If new potatoes can be sold down in Bradentown for \$2.00 a bushel, why does not everybody go into the business?" I asked my neighbor, Mr. Rood, why he did not grow potatoes by the acre. He said, "Simply because I can make more money in growing celery and strawberries."

I suppose you know that new potatoes are shipped from Florida to the Northern markets by the hundreds of carloads, and this is being done now while I write. I do not think, however, they get the big price of \$2.00 a bushel.

Now, something else comes in right here that Mrs. Root has complained about. She says the people who write for the papers

never mention it. She says that \$2.00 a bushel is not so much when they are paid for in store pay, like our eggs and all sorts of vegetables and fruit (that is, where we do things on a small scale); the produce has to be carried to the towns and sold at the groceries, and all you get is "store pay." I believe the rule is for the grocer to sell potatoes, fruit, eggs, and vegetables at just what they pay for them. Their profit comes from the goods they sell in exchange for truck.

A year ago, when I left Florida I had a credit of about \$40.00 at the groceries; but it took it all, and more too, to pay for the "chicken feed" from May till November. Mrs. Root comes back at me just here and asks where the *profit* is. The profit comes in the young flock of pullets that have to be fed until they are old enough to begin to lay. You see I am *now* coming over to the *poultry* part of my article.

We hear it over and over again that it does not pay to keep chickens in Florida because grain costs so much; and that is true to a certain extent, or according to how you look at it. Wheat, oats, and corn cost about \$2.00 per 100 lbs.; corn and oats a little less, and wheat a little more. But now look here: Even if it is true that you can't grow wheat, oats, and corn profitably in Florida, you can grow Irish potatoes (as I have demonstrated every winter), and get a good price for them. I can swap a bushel of potatoes for 100 lbs. of corn, and usually get 15 or 20 cents besides to my credit. I do not know how many bushels of those nice potatoes could be grown on an acre; but I think it safe to say 200. Now, if every bushel were swapped for 100 pounds of corn, what sort of a corn crop would that be? And, by the way, all the grocers in Bradentown deliver their stock, and, if you wish, they at the same time pick up your products, such as eggs or garden truck. One of the grocers recently purchased a Ford auto truck, and he will come down to my place, a mile from his store, to bring me a bag of corn and take back a bushel of potatoes. Now, Florida has some drawbacks, I admit; but is there not much to be thankful for also?

Just a word or two more about swapping country produce. If I am correct, this practice is not confined to Florida, but it is a fashion almost all over our land. Take your butter, eggs, etc., to the store, swap them for groceries; and is not that a short cut from producer to consumer? I think that *butter* of late is mostly cash; and here in the North we have egg-dealers who go around to the farmers and pay cash. Mr.

Rood, in selling his strawberries at the groceries in Bradenton, has the same difficulty to meet. He takes pay out of the store; but the grocer sells all kinds of produce such as meat, etc., and Mr. Rood keeps quite a lot of men almost all the year round; and he also buys fertilizers by the ton. In that way he does not have much difficulty in trading out what is due him on the berries. Of course, the people who go there to the berry-fields after fresh fruit pay cash, and he gets quite a little in that way.

While I think of it, our two sons visited us last winter at different times, and they thought there were no strawberries in all the world better than the Florida product. They just filled up on berries grown by Mr. Rood, and "filled up" on cream also, furnished by his Jersey cows. You see, Mr. Rood makes a *specialty* of "strawberries and cream." Now, one reason why he keeps so many Jersey cows is because of the quantity of manure they furnish, which down south is worth \$3.00 a load. Now, last but not least, I have got something else that comes in right here most beautifully. Some of you may come back at me and say, "But, Mr. Root, you forget to mention that you cannot grow those beautiful potatoes such as you showed us in the picture without buying a lot of expensive fertilizer at, say, three or four dollars a bagful."

Yes, I can. The hundred or more chickens I usually keep furnish me all the fertilizer needed to grow the produce; and the finest sweet potatoes as well as Irish, that I ever grew, are right on the ground where I have had my poultry-yard, and they are good big yards too, which I have had for several years.

Let us now wind up with a "summary" of suggestions just as the experiment-station bulletins give us. At the end of each bulletin they say something like this:

Potatoes can be planted all over Florida from October to February; and if intelligently grown and cared for they can be sold for something like \$2.00 a bushel; and you can, as a rule, swap a bushel of potatoes for 100 lbs. of corn or other grain. A good part of the winter, eggs bring from 40 to 50 cents a dozen, and the poultry droppings will furnish the very best fertilizer to help supply the minerals that may be needed. Now, this being true, how can anybody say we cannot grow chickens in Florida because the *grain* costs so much?

Let me add, in closing, that my colored man, Wesley, has had charge of my chickens since I left, May 1. He has work around in the neighborhood, so it is not much of a task for him to look after the chickens

mornings and evenings, and he has just now sent in a report, for this present month of May, of an average of over three dozen eggs a day from about fifty laying hens. He takes the eggs to market every night, and swaps them for grain. Of course, eggs now are only 20 cents a dozen; but the three dozen eggs pay for the feed of not only the fifty laying hens, but as many more pullets not yet quite old enough to lay, and still leaves quite a fair margin every week to pay him for his morning and night visits.

HOW TO MAKE A HOT-BED; ROOTED CUTTINGS, POTTED PLANTS, ETC.

When I reluctantly left my garden in Florida, and came here where there is frost, about May 1, for a few days I felt lost because I could not see "things grow." One of the first things I did was to order a big wagonload of well-rotted stable manure. Down in Florida it is \$3.00 a load, and you can not get *old* manure even then, or not often; but here in Ohio liverymen deliver it for only \$1.25 a load, and a big load at that. Well, next day after he had pitched it on a pile on the edge of the garden I noticed it was smoking. This was specially noticeable after a hard frost. (We had several hard frosts the first week in May, and one light frost on the 15th). Later, as I did not wish my precious manure to "burn up" I took a rake and spread it out, leveling it so as to let it cool off. In doing this I noticed it was almost boiling hot, and it occurred to me that, if I could throw some good soil on it, it would be a nice place to start seeds. Then my eye caught sight of an unused hot-bed sash over in my son-in-law's garden. All there was wanting, under the circumstances, was a frame or wooden box, without top or bottom, of the size of my sash, to be placed over the hot manure. Now, I was in a hurry; but I recalled that in the basement there were some pieces of boards left by the carpenter. There were none that were 6 feet long the size of my sash; but by taking two short ones and lapping them together I made two pieces for the sides of the sash, exactly 6 feet long. In a similar way the smaller bits made the end pieces, 3 feet long. With hammer and nails (but without any saw or other tools), I soon had a very serviceable frame or box for my hot-bed with sash on top of it. Now, down in Florida May is the dry month. My man Wesley writes me to-day, May 18, that there has been scarcely a drop of rain since I left; but here in Ohio—oh dear me! every thing has been swimming in water for the past two weeks. I managed, however, to find some of our clay soil that was dry enough

to sift, and soon had two or three inches of this soil covering the hot manure inside of the box.

Just a word about getting good soil for a hot-bed or cold-frame. Florists go long distances to get the right kind of material for "potting-soil." If there is a creek or stream near you, where the dirt or soil is washed down the gullies, you can often find an abundance of very nice friable loam. Perhaps a little sand has washed in with it, though it is a clay soil; and this wash from the hillside is often the very nicest material to help make potting-soil. Let me digress again.

Last fall our people bought a carload or more of sweet-clover seed with the hulls on. To save transportation charges to our customers a clover-huller was employed to take the hulls off. Well, these hulls lay in a heap all winter; and this spring, when my eye happened to catch on to them, it looked like a pile of old well-rotted manure. There was a heaping wagon-boxful, and I had it placed right opposite my hastily made hot-bed. This was sifted and mixed with the soil I have mentioned, and I had a "compost" that should have made any gardener happy. Well, after my hot-bed was fixed I planted melons, squashes, lettuce, radishes, beans, some dasheen tubers, and a little of almost every thing else. Then I went up to the greenhouse in our town and got a dozen potted tomato-plants. The manure at first was too hot, even for the tomatoes; but when it cooled off a little I put them clear down where the roots could go into the hot manure if they wanted to; and just now, May 18, I have a little greenhouse that delights my heart. Squashes, melons, and all these rank feeders that love bottom heat, are just doing their best.* Of course I have to give them ventilation when the sun comes up; but in the middle of the day my hot-bed is shaded by some evergreen trees. The ground is yet too wet to make garden outside, although I have had my furrows marked out. My melons, squashes, etc., will be transplanted outside as soon as the weather will permit; and under each hill I am putting the manure and rotted clover chaff.

Much is being said in the papers now about the "backyard garden" as well as about the back-yard chickens. Well, now, it will not pay you to fuss with a small garden unless you can make the ground exceedingly rich. Hunt up the proper materials, and work them over well together, then put a shovelful of compost under each hill, and you will get enormous crops. It is

some fuss and bother; but I tell you no one knows as yet how much stuff may be grown on just a few square rods of ground if you feed and water the plants properly. Your ground must be well underdrained to take care of the heavy rains such as we have here in the North; and here is a nice thing about hot-beds or cold-frames:

When your stuff has already had too much rain, put on the sashes to keep it off. Some of you may say, when you read this, "This is the wrong season of the year to talk about hot-beds, cold-frames, etc." Well, that is true to some extent; but you can keep it in mind and be ready to push things another season. And there is one thing more about it. How many of you have had experience in paying out good money for choice plants and had them die under the scorching sun that is liable to come even in May as well as in June? Let me tell you how to avoid all such disappointments—that is, I can tell you how to take a plant that is almost dead and make it come to life, with just such an arrangement as I have described, but without the bottom heat. Have some good rich soil, say half manure. Put in some sand to make it friable, and have it carefully sifted so as to get out all the lumps, stones, etc. If you are not very strong have your glass sash hinged so it can be opened up and hooked against a post or tree. As a 3 x 6-foot sash is rather heavy, a coiled spring at each corner to help raise it up will be quite a convenience. I think it would be better to have the arrangement in the shade of a tree, or, say, a tree that will shade it in the middle of the day. If not, you will want a cloth frame to lay on top of the sash when the sun is very hot. Put a thermometer inside so you can have the heat just where you want it. Now, while the sash is in place, the air will be moist inside of the frame, no matter what the weather is outside. When you get some new plants, put them in this rich soil and keep the sash down and shaded in the middle of the day until the plants got well rooted. Then you can gradually harden them off and move them outside almost without a failure if you keep the matter of moisture just right. Do not water too often; and do not let the soil become either too wet or too dry.

ROOTED CUTTINGS; POTTED PLANTS, ETC.

I have often spoken of friend Reasoner's big establishment at Oneida, Fla., only five or six miles from my Florida home. Mr. Reasoner has collected valuable semi-tropical fruits and plants from all over the world, and, in fact, he is shipping them daily *almost* all over the world. Although they seldom have frost in that locality, he

* The "Halianiti" tubers (see previous mention) are making the biggest progress of any and all the rest.

has quite a range of glass-covered greenhouses. Then he has *acres* of garden that can be covered in severe weather by cotton sheeting; and once in a while he has stoves inside to warm up the temperature. Now, one of his houses that greatly interested me was a glass house for making rooted cuttings. It is kept at a high temperature, and the air in it is always moist, and kept so by sprinkling not only the plants but the floors and walks. In this "forcing-house" he makes "rooted cuttings" of almost every thing for which there is a sufficient demand. For instance, he will take a mulberry-tree and cut the branches all up into little cuttings, perhaps two or three inches long. They are then set in moist sand until they take root. Then you may see not only hundreds, but *thousands* of little plants and little trees all the while being propagated in this forcing-house. I felt a good deal pleased to find out that the foreman of this house came from our Ohio Experiment Station.

Well, when these cuttings of valuable plants begin to send out their little white roots they are put into small pots with such a rich compost or potting-soil as I have

described, and kept growing until the roots fill the little pots, and in this shape they are sent out to customers. The plants (soil and all) are slipped out of the pot, securely packed in damp moss surrounded with paraffine paper to hold the moisture, and then they will keep in good order for long shipments. During the winter I purchased thirty or forty potted plants of Florida fruit and flowers, put them out in my garden, and it was a great pleasure to me to see almost every plant keep right on growing almost as if it had not been transplanted. When these new fruits come into bearing I propose to tell you all about them. I have before mentioned friend Reasoner's voluminous catalog; and, if you are interested in Florida and in what can be grown there, it will repay you to get this catalog and study it. It gives one full information in regard to plants that are hardy enough to stand out without any protection; and it also suggests the best and cheapest way to protect tender stuff that might not stand the frosts that are *liable* to come almost any winter.

POULTRY DEPARTMENT

HOW TO GET RID OF MITES ON POULTRY.

We use bamboo $1\frac{1}{2}$ or 2 inches in diameter, and about 5 feet long. We take a hot iron and burn a hole through the joints nearly the size of the bamboo; then at each joint take a saw and cut in a small notch $\frac{1}{8}$ inch wide, $\frac{1}{4}$ inch deep in a straight line, so all will be under the perch when set up. Drill holes in the end of the perch to drop a spike in to keep it from turning. Do not use any spray or oil on them, but keep them clean so the mites will go in them; for when the chickens go to roost these live do their feeding, and then hunt a nesting-place. If they are allowed to they will leave the chicken at night, and go into the holes under the bamboo, and fill the perch from end to end. Then all one has to do, a couple of times a week, is to lift up the perch, hold it up over a can of hot water or oil, hit it on the side, and see what happens. The results will scare you, for the pests will drop out in one long string. I have seen them come out in one mass not less than 3 feet long, and finally, after a few cleanings, one can get only about half a teaspoonful. The way we had our chicken-house fixed was to have the roosts separate from the building so that, when the chicken was on the roost, it could not touch the building. Use crude oil on the perch-holder legs about a foot off the floor to keep what lice are on the holder from going down on the floor and getting into the building; and if any spraying is to be done, take down the roosts and spray the house to make it healthy. The bamboo keeps the fowls' feet warm.

San Jose, Cal., Jan. 16. W. A. BARSTOW.

My friend, your suggestion is, I think, a good one. Down in our Florida home I have often noticed these bamboo poles, sometimes about as large as your arm, or

perhaps larger, which we find lying around loose. I was wondering if those partitions at the joints could not be easily bored out so as to make a very strong, light, serviceable tubing. Your suggestion of a hot iron, I think, would work it out to a dot. This would be a cheap way, where bamboo is plentiful, to make "trap" perches. While in California years ago I saw water carried a considerable distance down the mountains by means of bamboo tubing. The only trouble was that the coyotes learned to gnaw holes through the tubing so as to "get a drink" when thirsty. We have gotten the upper hand of the mites in Florida with very little trouble by spraying with kerosene with a little cresol added.

CUTTING OFF THE SPURS FROM OLD FOWLS.

In the issue of Oct. 15, you speak of good mother hens, some being very old. We have several such mother hens five and some six years old, which we should like to keep, but they have long spurs on their legs which make them almost unfit to hover young chicks; and sometimes the eggs are broken by the spurs while the hens are sitting on eggs. Can these long spurs be cut or sawed off without injury or pain to the hens?

Ross, Cal., Dec. 27.

PHILIP SCHAFER.

My good friend, we have repeatedly cut the spurs off from our old roosters with a

little thin saw such as is used for sawing metals. You can buy such a saw and frame at any hardware store for from 10 to 25 cents. I suppose any fine saw will answer. It is done very quickly, and does not seem to trouble the fowls at all. I noticed in the poultry-journals something about the feet of the fowls bleeding; but I have never seen any thing of that kind. Sometimes these

spurs are very sharp, and, of course, they are of no use at all to people like you and me who do not believe in cock-fighting. I presume they could be cut off with a pair of pruning-shears just about as well; but I think the saw will probably cause less pain and do a smoother job. I feel sure the elderly biddies will thank you for getting these abnormal growths out of their way.

HEALTH NOTES

SOMETHING IN REGARD TO GRAPEFRUIT, FROM

A. I. ROOT

Our readers will recall that several times I have mentioned the benefit I get from grapefruit taken daily when I am in Florida. During the past winter our nearest neighbor, Mr. Harrison, has kept me supplied with great luscious fruit at only 40 cents a dozen. Many of them are so large that I used only half of one with my apple supper. In this connection in my reply to friend Vincent, in Kind Words for April 15, I forgot to mention grapefruit. I have several times alluded to the kidney trouble that obliges me to get up in the night. Well, just as soon as I have plenty of grapefruit I sleep until broad daylight, without any disturbance or annoyance whatever. Others have corroborated it.

The question has frequently come up, "If it is really true that the grapefruit has such valuable medical qualities, why not have it bottled like grape juice, just now (thank God) on sale in almost every corner grocery from Maine to Florida?"

Now, I do not know how much has been done in putting up grapefruit juice so it will keep; but another near neighbor is already at work on it, and has put it up in bottles such as are used for grape juice, and has kept it successfully for many months. The only trouble with it at present is that it is going to be rather more expensive than grape juice.

Just one thing more about grapefruit. I have not found it easy, when eating either grapefruit or oranges, to avoid getting "mussed up" more or less. If the juice happens to spurt out on your clothing it leaves a bad spot. Now, here is a suggestion: Get a straw, or several of them, such as are seen at every soda-fountain, and suck the grapefruit juice through a straw. Just cut a hole in the top and squeeze the juice into the cavity, and there you have it, all nice and clean, without any bitter from the white inside pulp or lining of the fruit. By the way, it has been suggested that this

bitter principle of grapefruit not only *tastes* like quinine but *acts* like quinine in warding off and curing chills.

May the Lord be praised for this beautiful fruit that is both food and medicine; and may the time soon come when grapefruit juice, pure and unadulterated, will be as cheap as grape juice, which I firmly believe is just now (under the stimulus of the temperance wave) taking the place largely of beer and other intoxicants.

APPENDICITIS, OR SOMETHING ABOUT SURGERY IN GENERAL.

A good lady at the close of a very kind letter writes as follows:

I do not think we can improve on God's plans. The medical men (many of them) say there is no use for the appendix in our day. I've yet to see the first one who regained health so as to do the work he might do if he had not undergone the operation. Their nerves are wrecked by the shock and the drugs they are required to take. These temples of ours are to be temples of the Holy Ghost.—I. COR. 3:7.

Many thanks, my good friend, for your very kind letter. Just a word about appendicitis. Our son Huber, while in school, had sudden attacks on and off for two or three years. They kept getting worse and worse, until the doctors said that, if he lived through the last one, as soon as he was strong enough he must have an operation. It was successful, and for ten years he has been well and exceedingly robust. Right here is the important point: He has never (since the appendix was removed) had a single twinge of his old trouble that kept coming at intervals for years.—A. I. R.

A KIND WORD FOR A. I. ROOT AND ALSO FOR THE DASHEEN.

After the 15th and 30th of the month I am always on the lookout for GLEANINGS. While I am not at present in the beekeeping line I like to read of the other fellow's efforts. I hope to be keeping a few colonies next year in British Columbia, where the climate is milder, and to which Province I am going this fall.

I like to read A. I. Root's Home page, and trust he will live to keep up the good work many years yet. What he claims for the dasheen is all right, as I have grown and eaten them in the West Indies.

Calgary, Can., March 31. E. F. GREGGAM.

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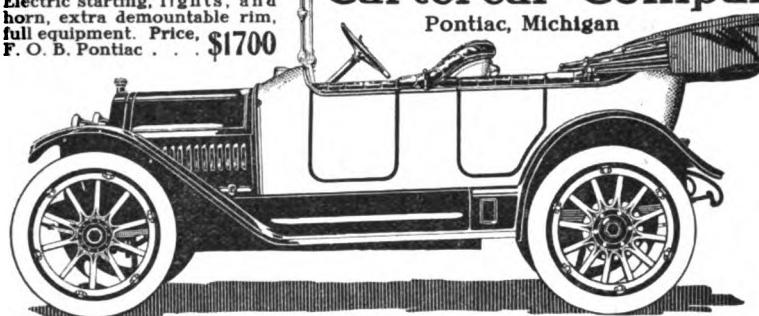
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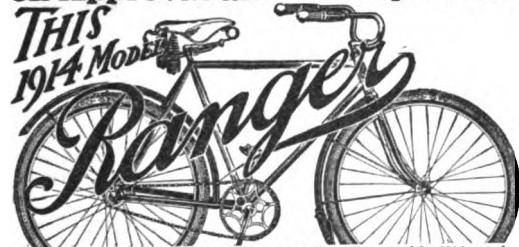
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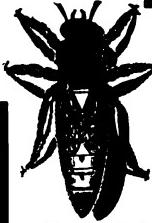
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Beekeepers, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap.
WHITE MFG. Co., Greenville, Texas.

Thick-top L. frames, f. o. b. Blountstown, at \$2.00 per 100, in flat; \$18.00 per 1000. Sample by mail, 5 cts.
TUOKER & BAILEY, Blountstown, Fla.

The A. I. Root Co.'s Canadian House, Dadant foundation, bees, queens, honey, wax, poultry supplies, seeds. Write for catalog.
THE CHAS. E. HOPPER CO., 185 Wright Ave., Toronto, Ontario.

FOR SALE.—Smokers and feeders slightly damaged by flood, at one-half catalog price. Bargains. Mention what you want and enclose remittance. We reserve right to substitute.
E. W. PEIRCE, Zanesville, Ohio.

"Root" bee supplies, "American" honey-cans, and "Weed Process" foundation exchanged for beeswax and honey. Cash prices on request.
SUPERIOR HONEY Co., Ogden, Utah.
(Branch at Idaho Falls, Idaho.)

I thank the beekeepers for the interest shown in my double-section super described in March 15 GLEANINGS. I received an interesting letter from Hawaii. Will give all a chance to try it at small cost. Will send the 10-frame size, all set up, by parcel post, postage paid up to and including the 4th zone, for \$1.10; longer distances, add extra postage. You will try it eventually if you are an up-to-date beekeeper.
ELMER GRESSMAN, Hamburg, N.Y.

Why use cans? Kegs are cheaper and easier to fill and handle; 180-lb. size with 2-inch hole and plug, 50 cts. each f. o. b. factory.
N. L. STEVENS, Venice Center, N. Y.

WANTS AND EXCHANGES

FOR SALE.—5 H. P. Pierce motorcycle, or will exchange for bees.
R. V. LANGDON, Baraboo, Wis.

WANTED.—Back numbers of GLEANINGS. State how many you have, for what years, and price.
R. A. NUSBAUM, Duncan Falls, Ohio.

WANTED.—Best offer on thirty 12-section safety cases of No. 1 to fancy clover-heartsease honey placed in our hands for disposal. Color light as average clover.
E. W. PEIRCE, Zanesville, Ohio.

WANTED.—Camera, bicycle, collie dog, old bee journals, or cash in exchange for my choice Italian queens. Twenty years' selection for honey-gathering qualities. None better for practical results. Write for circular.
R. A. NUSBAUM, Duncan Falls, Ohio

WANTED.—To furnish every beekeeper within 500 miles of Boise, Idaho, with the best and cheapest bee supplies on the market, *quality considered*. Send me your order or a list of your requirements for 1914. Our catalog and price list will be mailed to you free. Order early and get the discounts.
C. E. SHRIVER, Boise, Idaho.

REAL ESTATE

Virginia orchards pay handsome profits. Good fruit lands in the famous apple belt \$15 an acre up. Easy payments. Send names of two friends interested in Virginia and receive our beautiful magazine one year free.
F. H. LABAUME, Agr'l Agt. Norfolk & Western Ry., Room 246, N. & W. Bldg., Roanoke, Va.

BEES AND QUEENS

Phelps' Golden Italian Queens will please you.
C. W. PHLEPS & SON, 3 Wilcox St., Binghamton, N. Y.

FOR SALE.—Italian bees, \$8.00 per colony.
W. C. DAVENPORT, 2201 Pioneer Road, Evanston, Ill.

Pure Italian bees or their hybrids in L. 10 frames, wired, full foundation, 1 or 100.
JOS. WALRATH, Antioch, Cal.

Connecticut queens, 8-banded Italians only; large and vigorous; ready May 15. Price list.
W. K. ROCKWELL, Bloomfield, Ct.

Phelps' Golden Italian Bees are hustlers.
C. W. PHLEPS & SON, 3 Wilcox St., Binghamton, N. Y.

Try my bright queens. Select untested, \$1.00; \$9.00 per 12. Safe arrival and satisfaction guaranteed.
M. BATES, Rt. 4, Greenville, Ala.

Leather-colored Italian queens June 15. Circular free. No foul brood. One, 85 cts.; 6, \$4.50; dozen, \$8.00.
D. G. LITTLE, Hartley, Iowa.

Three-band Italian queens. Tested, \$1.00; untested, 75 cts. Ready May 15.
S. CLICK, Mt. Jackson, Va.

FOR SALE.—150 colonies tested Italian bees; honey-house, tent-house, and complete extracting equipment.
H. E. DIKE, Calabasas, Cal.

QUEENS OF QUALITY.—Three-band, leather color, select untested, 75 cts. each; \$8.00 per dozen. Satisfaction guaranteed.
Circular free.
J. I. BANKS, Liberty, Tenn.

FOR SALE.—Fine Italian queens. See my large ad. in this issue.

J. F. ARCHDEKIN, Rt. 7, St. Joseph, Mo.

Golden yellow Italian queens my specialty. Un-tested, \$1.00; tested, \$1.50. Ready April 1. Safe arrival guaranteed. E. A. SIMMONS, Greenville, Ala.

Golden Italian queens, tested, \$1.00; select tested, \$1.25; untested, 75 cts.; dozen, \$8.00; untested, after July 1, 60 cts.; dozen, \$7.00.

D. T. GASTER, Rt. 2, Randleman, N. C.

Untested queens, 75 cts. each; dozen, \$7.50; nuclei, \$1.25 per frame. Young bees by the pound, \$1.50; $\frac{1}{2}$ lb., \$1.00. Full colonies, 8-frame, \$6.50; 10-frame, \$7.50. D. D. STOVER, Mayhew, Miss.

FOR SALE.—Golden Italian queens that produce golden bees; for gentleness and honey-gathering they are equal to any. Every queen guaranteed. Price \$1.00; 6 for \$5.00. Wm. S. BARNETT, Barnett's, Va.

Bees and queens; three-band Italians; 1 lb. bees with queen, \$2.00; $\frac{1}{2}$ lb. with queen, \$1.50. Untested queens, one, 75 cts.; 6, \$4.25; 12, \$8.00. Safe arrival. W. J. FOREHAND, Ft. Deposit, Ala.

Phelps' Golden Italian Queens combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; six, \$5.00; tested, \$8.00; breeders, \$5.00 and \$10.00. C. W. PHELPS & SON, 3 Wilcox St., Binghamton, N. Y.

FOR SALE.—Italian bees, 1 lb. with queen, \$2.25; 1 frame with queen, \$2.00. Queens, 75 cts. each. Safe delivery guaranteed; 30-page catalog with beginner's outfit, for stamp. THE DEROV TAYLOR CO., Newark, N. Y. (formerly Lyons).

Queens and bees for sale.—See our large advertisement elsewhere in this journal, and read The A. I. Root Co. letter to us regarding our queens. Write at once for large bee and queen circular.

THE PENN CO., Penn, Miss.

California Italian queens, three-banded and Goldens; also bees by the pound for June and later delivery. Booked full till June 1. Circular and price list free. Write J. E. WING,
155 Schiele Ave., San Jose, Cal.

Golden Italian queens that produce golden bees, the brightest kind, gentle, and as good honey-gatherers as can be found. Each, \$1.00; six, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.

J. B. BROCKWELL, Barnett's, Va.

Golden and three-banded Italians—ready March 1. They have been bred for three points—proficiency, gentleness, and honey-gathering qualities. Select un-tested, each, 75 cts.; six, \$4.25; 12, \$8.25; 50, \$32.50; 100, \$60.00. Tested, \$1.50; select tested, \$2.00; three-banded breeders, \$4.00; golden breeders, \$5.00. GARDEN CITY APIARY CO.
Rt. 3, Box 86, San Jose, Cal.

Famous North Carolina bred Italian queens for sale—(red-clover three-banders); honey-gatherers, good as the best. Strictly reared from Geo. B. Howe's best breeders, mated with Root's, Moore's, Davis' select drones; bees that get the honey; free of disease. Untested, 1, 75 cts.; dozen, \$7.50. Select untested, 1, \$1.00; dozen, \$9.00. Tested, 1, \$1.25. Select tested, \$1.50. Extra select tested, \$2.00. Breeders, \$3.00 to \$5.00.

H. B. MURRAY, Liberty, N. C.

BEES AND QUEENS.—Queens bred from Doolittle's best stock, untested, 60 cts. each; \$6.60 per dozen; \$50 per 100. Same stock of year-old queens removed from our colonies to prevent swarming, 50 cts. each; \$5.40 per dozen; \$40 per 100. Delivery guaranteed. Nuclei, two-frame, \$1.50; three-frame, \$2.00. Add price of above queens wanted. We have a rare bargain of apiary of several hundred colonies of bees for sale on easy terms. Particulars on request.

SPENCER APIARIES, Nordhoff, Cal.

Queens by return mail, or your money back. See larger ad. Write for free booklet, "How to Transfer, Get Honey, and Increase."

J. M. GINGERICH, Arthur, Ill.

If you need queens by return mail we can fill your order. Three-band Italians only. Tested, \$1.00 each; untested, 75 cts.; \$8.00 per dozen. All queens guaranteed to be good, or money refunded. J. W. K. SHAW & CO., Loreauville, Iberia Parish, La.

Golden Untested Italian Queens, \$1.00; six for \$5.00. These bees are gentle, prolific, energetic, and pretty. Under date of May 2 an old customer—Chas. Stewart, Johnstown, N. Y., State Bee Inspector—writes, "Received in fine condition 10 queens." Ready to mail. J. B. CASE, Port Orange, Fla.

Golden and three-band Italian and Carniolan queens ready to ship after April 1. Tested, \$1.00; 3 to 6, 95 cts. each; 6 to 12 or more, 90 cts. each. Untested, 75 cts. each; 3 to 6, 70 cts.; 6 or more, 65 cts. each. Bees, per lb., \$1.50; nuclei, per frame, \$1.50. C. B. BANKSTON, Buffalo, Leon Co., Tex.

Dunn's Golden Italian queens, bred strictly for business, that produce a strong race of honey-gatherers. March 1 to Oct. 15: One, mated, 75 cts.; 6, \$4.25; 12, \$8.25; \$50; \$32.50; 100, \$60.00. Tested, \$3.00; breeders, \$10.00. L. J. DUNN, Queen-reeder, Box 337G, Rt. 6, San Jose, Cal.

Try Forehand's three-band Italian queens. They are raised from imported stock, unexcelled for honey and gentleness. One untested, 75 cts.; 6, \$4.25; 12, \$8.00. Send me your order; and if not satisfied I will return money. Safe arrival.

N. FOREHAND, Rt. 2, Brewton, Ala.

Italian untested queens by return mail, or soon. We keep increasing our output, and hope to keep up with orders. Our queens we guarantee will satisfy you; no disease. One for 75 cts.; 6 for \$4.25; 12 for \$8.00; 100 for \$60.00. Tested queen, \$1.25. If you are particular about your queens, we wish to supply you. W. D. ACHORD, Fitzpatrick, Ala.

FOR SALE.—Three-banded Italian queens, from the best honey-gathering strains, that are hardy and gentle. Untested queens, 75 cts.; 6, \$4.25; 12, \$8.00; tested queens, \$1.25; 6, \$7.00; 12, \$12.00. Selected queens, add 25 cts. each to above prices. Breeding queens, \$8.00 to \$5.00 each. For queens in large quantities, write for prices and circulars.

ROBERT B. SPICER, Wharton, N. J.

FOR SALE.—Italian queens, the three-banded leather-colored hustlers. Queens are bred from a few select colonies, the record-breakers out of over 700. Tested, \$1.25; 6, \$7.25; select, \$1.50; 6, \$8.75; untested, 75 cts.; 6, \$4.25; 12, \$8.25; select, 90 cts.; 6, \$5.00; 12, \$9.00. Breeders, \$3.00 to \$5.00 each. Queens are ready to mail now. Satisfaction and safe arrival guaranteed. No disease.

BROWN & BERRY, Hayneville, Ala.

Three-banded red-clover queens. Tested, \$1.50; select tested, \$2.00. One-frame nuclei, \$1.50; two-frame, \$2.50; three-frame, \$3.25, either for dovetailed or Danz. hives. Full colonies, all strong and healthy, in ten-frame dovetailed or Danz. hives, \$9. In Root's Buckeye double-walled hives, \$11.50. All frames wired, and firstclass. Add price of above queens wanted. Safe delivery and satisfaction in U. S. guaranteed. J. W. LEIB,
563 S. Ohio Ave., Columbus, Ohio.

Guaranteed purely mated 3-band Italian queens, J. E. Hand strain, bred for gentle, prolific, honey-gathering, wintering, and long life. State Inspector's certificate. Queens by return mail, or your money back. Before July 1, select untested, one, \$1; 6, \$5; tested, one, \$1.25; 6, \$7; select tested, one, \$1.75; 6, \$9. Breeders, \$5. After July 1, select untested, one, 75 cts.; 6, \$4; 12, \$7; tested, one, \$1; 6, \$5; 12, \$9. Select tested, one, \$1.25; 6, \$7; 12, \$13. Breeders, \$4; 10 per cent discount on 30 days' advance orders. Safe delivery guaranteed in United States and Canada. Reference, First National Bank.

J. M. GINGERICH, Arthur, Ill.

POULTRY

FOR SALE.—Thoroughbred Buttercup eggs, \$1.50 for 15. Mrs. D. POTTER, Rt. 4, Ashtabula, Ohio.

FOR SALE.—Sicilian Buttercup eggs for hatching, \$1.50 per 15 eggs. L. S. GRIGGS, 711 Avon St., Flint, Mich.

Sicilian Buttercups. One utility flock. Eggs, \$1.00 per 15; unsatisfactory hatches replaced at half price. WALTER M. ADNMA, Berlin, Mich.

Eggs.—20 for \$1.00; leading varieties prize poultry, pigeons, hares, etc. Booklet free. Large illustrated catalog, 10 cts. F. G. WILE, Telford, Pa.

S. C. White Minorcas, \$3.00 per 15; R. C. Buff Leghorns, S. C. Brown Leghorns, and Partridge Wyandottes, \$1.00 per 15. HILLCREST FARM, Winchester, Ind.

FOR SALE.—Eggs, 15 for \$2; cockerels, \$3; "blue-ribbon stock." Columbian Wyandottes and Light Brahma. Twenty years a breeder.

AARON J. FELTHOUSE, Elkhart, Ind.

INDIAN RUNNER DUCKS

FOR SALE.—White and Fawn Indian Runner ducks. One year old and better, 85 cts. each; \$9.00 per dozen. JOSEPHUS BIRD, Rt. 8, Duquoin, Ill.

Runner and Pekin Ducklings and hatching eggs. White-egg strain. Blue-ribbon stock. Also drakes. Catalog for stamp.

THE DEROY TAYLOR CO., Newark, N. Y.

Eggs from a heavy-laying strain of White Indian Runner ducks, \$2 per 15, \$10 per 100. In the hottest competition the past winter I took every blue ribbon wherever shown. I guarantee a pure-white-egg strain. WM. DROMMS, Rt. 2, Schenectady, N. Y.

HELP WANTED

WANTED.—Reliable man of good habits to work with bees the coming season. State age, experience, and wages first letter.

THE ROCKY MOUNTAIN BEE CO., Forsyth, Mont.

WANTED.—Man (married preferred) experienced in queen-raising; employment by the year on a salary and percentage.

OGDEN BEE AND HONEY CO., Ogden, Utah.

BEEKEEPERS' DIRECTORY

If you need queens by return mail send to J. W. K. SHAW & CO., Loreauville, Iberia Parish, La.

Nutmeg Italian queens, leather color, after June 1, \$1.00 by return mail. A. W. YATES, Hartford, Ct.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York.

QUEENS.—Improved red-clover Italians bred for business June 1 to Nov. 15, untested queens, 75c each; dozen, \$8.00; select, \$1.00 each; dozen, \$10; tested queens, \$1.25 each; dozen, \$12.00. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Boyd, Ky.

PUBLICATIONS ON BEE CULTURE

(Please use coupon below, check-
ing the numbers of items wanted)

The pamphlets and booklets listed below are of more than ordinary interest.

1 **MY FIRST SEASON'S EXPERIENCE WITH THE HONEYBEE.** By the "Spectator," of New York. A ten-page leaflet detailing the experiences of this well-known writer. You will read the leaflet through before you lay it down. Free.

2 **THE BEEKEEPER AND FRUIT-GROWER.** A 15-page booklet giving actual facts regarding the value of bees to fruit, and showing how beekeeping may be doubly profitable to the fruit-grower. Fruit-growers are realizing as never before the necessity of having honeybees in close proximity to their blossoming fruit. Free.

4 **CATALOG OF BEEKEEPERS' SUPPLIES.** Our complete catalog will be mailed free to any address on request.

7 **SPRING MANAGEMENT OF BEES.** A 14-page booklet detailing the experiences of some successful beekeepers, and giving instructions on this oftentimes perplexing matter. Price 10 cts.

8 **HABITS OF THE HONEYBEE.** By Dr. E. F. Phillips. A somewhat scientific handling of the habits and anatomy of the bee. Price 10 cents.

9 **HOW TO KEEP BEES.** A book of 228 pages detailing in a most interesting manner the experiences of a beginner in such a way as to help other beginners. Price \$1.00 postpaid.

10 **THE A B C OF BEE CULTURE.** A complete encyclopedia of bees, of 712 pages, fully illustrated, \$2.00 postpaid; half leather, \$2.75.

11 **GLEANINGS IN BEE CULTURE.** A 64-page illustrated semi-monthly magazine—the leading exponent of bee culture in this country. Ten cents per issue, but to new subscribers we will furnish it six months for 25 cents.

12 **BACK-YARD BEEKEEPING.** Six interesting lessons written in readable newspaper style. Many facts encouraging the "city bound" man or woman with the back-to-the-land longing. Free.

13 **THE BUCKEYE BEEHIVE,** or the management of bees in double-walled hives. Of special interest to the amateur beekeeper. The most complete booklet we publish for free distribution. Illustrated throughout; 84 pages.

14 **ADVANCED BEE CULTURE.** A beautifully printed book. Best plate paper has been used throughout its 200 pages, with the result that its many fine illustrations are unusually clear in every detail. Bound in attractive and substantial cloth; \$1.00 per copy, postpaid.

The coupon below may be used as an order sheet by properly checking the numbers of items wanted, and adding your signature, and remittance if required.

CUT COUPON HERE

The A. I. Root Co., Medina, Ohio.

Please send me the items checked. I enclose

\$..... to cover the cost.

1	2	4	7	8	9	10	11	12	13	14
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Name

Street Address or R. F. D.

Town

B. C.

State

SPECIAL NOTICES

BY OUR BUSINESS MANAGER

BUCKWHEAT SEED.

The season for sowing buckwheat is here, and the supply of seed is rather scarce and high. We have both Japanese and silverhull in limited quantity which we will sell while it lasts at \$3.00 per 100 lbs.; 25 lbs., 85 cts.; 12 lbs., 45 cts.; bags included.

SWEET-CLOVER SEED.

Since the last issue went to press we have secured some imported hulled white-sweet-clover seed so that we can offer it at the price last named—\$24.00 per 100 lbs.; \$6.25 for 25 lbs.; \$2.60 for 10 lbs. We have a good supply of unhulled, both white and yellow, at \$17.00 per 100 lbs.; \$4.50 for 25 lbs.; \$1.90 for 10 lbs. If in need of seed let us hear from you.

PHILADELPHIA BRANCH.

On account of the increasing business at Philadelphia, with the convenient facilities of steamship and rail in all directions, we have taken the first floors of No. 8-10 Vine St., and are making improvements, building an office and salesroom and shipping-room on the first floor, thus enabling our customers in the future to transact their business without going up even one flight of stairs. We know this will be welcome news to our Philadelphia friends, who for so many years have had to travel to the third floor.

A brief outline of the Philadelphia branch may interest our readers. A little over twenty-one years ago, Mr. Wm. A. Selser, who had bought our supplies direct for several years, stopped at Medina on his way north from Florida, and arranged to handle our goods on an agency basis, so that he might have our supplies to use on immediate call.

He rented one corner of the fourth floor of 8 Vine St. One or two attempts had been made to sell supplies before this by others, selling their own or a patent hive, and he was told it would never pay at Philadelphia, as there was not enough call for them, notwithstanding Philadelphia alone had one of the strongest local beekeepers' associations then existing.

Soon, however, the whole floor was taken, then the adjoining floor of 10 Vine St., and a year or so following the third floors of 8-10 Vine St. were secured; and on account of our desire to make our Philadelphia branch a distributing-point to our other agencies, some ten years ago we put the business on a branch basis, removing the book-keeping to Medina, etc., until to-day, when the improvements are finished, we will occupy the basement, with the four floors above, of the large warehouses of both 8-10 Vine St., and will invite both our old and new friends to call and inspect our new dress and improved facilities for attending to all their wants promptly.

SPECIAL NOTICES

A. I. Root

THE SALOON FIGHT AT BERNE, IND.

The book with the above title, mentioned elsewhere in this issue, can be furnished from this office, and we have made arrangements to give it with GLEANINGS for one year for only \$1.25. The dissemination of this book among the people will not only have great influence in the temperance cause, but will be a tremendous argument in favor of non-resistance, or "returning good for evil."

HOW TO MAKE A GOOD BOY OUT OF A BAD BOY OR A GOOD GIRL OUT OF A BAD GIRL.

A magazine called *Nature Study Review*, published by the Comstock Publishing Co., Ithaca, N. Y., contains in the May number a story entitled "The Reformation of Mary Hogan" that is well worth the price of the magazine for a whole year. Yes, it is worth ever so many dollars, not only because of what it teaches, but because it suggests the great reform that is coming, and coming speedily, too, in the way

of educating our boys and girls. Judge Ben Linsley, of whom you have doubtless all heard, has astonished the world by showing us how bad boys can be made good boys. And he has astonished the world, too, by letting us know the fault is not so much with the boys, or the girls either, for that matter, as with their environment. Judge Linsley tells us to arrest the *saloonekeeper* and put him in jail instead of punishing the boy because he took the proffered drink. By the way, I think I have just noticed in the papers that the brewers and distillers have made a desperate attempt to get Judge Linsley out of the way, as he hinders their traffic. May God be praised, however, that they have not succeeded. Now, I hope you will get this magazine in question, and read the story of Mary Hogan.

THE MANAGEMENT AND BREEDING OF HORSES.

The above is the title of a book just published by the O. Judd Co., of New York. Since the automobile has taken the place of horses to such an extent almost everywhere, some might think a book on horses would not be particularly needed; but there will probably be abundant use for good horses for ages to come. This is a book of about 500 pages, price \$2.00. It describes fully every thing in the line of horses, from the biggest heavy draft roadster down to the Shetland ponies which are just now such pets for the children. One grand thing about this book and many similar ones is that they are helping the people to break away from the superstitious nonsense in regard to doctoring horses, and adopting common sense and up-to-date scientific methods. I can remember the time when an ignorant horse-doctor went to a druggist and got the most powerful acids, and poured them down the horse's throat when the medicine (!) (only slightly diluted with water), burned out his insides, and killed the poor beast. He then announced to the owner that his horse "was so far gone that even 'aqua fortis' could not save him." Our experiment stations have done a lot toward doing away with such cruelty to the poor horse at the hands of somebody who calls himself a horse-doctor. This horse-book is chockful of pictures of every thing in the horse or mule line. If you wish to be posted and up to date, send to the O. Judd Co., for "The Management and Breeding of Horses." If desired, we can fill orders from this office.

THE AMERICAN PEACH ORCHARD.

The above is the title of a new book on growing peaches, just put out by the O. Judd Co., and written by Prof. F. A. Waugh; and, if I am correctly posted, there is no better authority on the peach and kindred subjects than Prof. Waugh, whose name has been for years a household word. I will tell you why I am just now once more enthusiastic about peaches. At this time of the year apples are scarce, poor, and expensive, and just a few days ago it occurred to me that I might supplement my apple supper with evaporated peaches. A year ago such peaches were to be had at 10 cts. per lb. at our grocery; but now they are 14. But even at that price they are not expensive. Just throw a double handful of them into pure cold water and let them stand 24 hours and you will have the most agreeable food and drink one can think of. I wonder why we do not have "peach juice" put up in bottles, and sold at a low price. Since beer has gone out of fashion (or is going out), why in the world should we not give a little more attention to fruit-juice substitutes? After taking a good drink of the juice soaked from peaches I can say, as I said a year ago, "May the Lord be praised for these invigorating and luscious drinks that nourish the body and encourage temperance and increase our happiness." If fruit juices do not help us to say, "Praise God, from whom all blessings flow," they certainly ought to. Well, this book has 286 pages besides the index, and is full of pictures from beginning to end. It is such a large nice book I thought the price would probably be \$1.50; but it is only an even dollar. Address the O. Judd Co., New York, or it can be furnished from this office if more convenient. Just a word more:

People often say that *there's* not a peach locality; but I think I may safely say that peaches may be grown almost anywhere in the United States. They have just found out they can grow beautiful peaches at comparatively small expense away down in Florida. They begin to ripen there in May, and by choosing different varieties one can have peaches

fruits all summer in his own dooryard. A few years ago a friend of mine who has a clay-soil farm not favorable for peaches visited a relative whose business is peach-growing on the shores of Lake Erie. He took careful watch to see how that relative managed, went home, and tried the same system of management on his clay farm. To the surprise of everybody, he very soon had a great crop of peaches for all the neighborhood and community; and the worst trouble I know of with his peach growing was the difficulty of fencing off the tramps that kept getting in to his nice fruit near the railroad. I have repeatedly grown as fine peaches here in Medina as I ever saw or tasted anywhere. But the trees were short-lived, with my method of management, or perhaps no management after they got to bearing. I presume this book will tell us how to keep the trees as they are kept in more favored localities. Near my cottage in the woods in northern Michigan I had peaches from trees 25 years old.

CHOICE PLANTS—HOW TO PREVENT THEM FROM DYING, ETC.

On page 440 I spoke of a cold-frame for choice plants until they have made a good start. If you have only a few plants and do not wish to go to the trouble of constructing a cold-frame, a common fruit-jar inverted over the plants will oftentimes be the means of saving them. I mean plants that have come through the mails or by express, and which are inclined to wilt down when exposed to the open air. If the plant is small, simply inverting a tumbler over it may answer. Then this tumbler or fruit-jar will need to be shaded from the fierce rays of the sun during the middle of the day. When plants are moved from the greenhouse or hot-bed out into the open air, they are very likely to have a setback, even if they do not die entirely; and this applies especially to rooted cuttings. In making a cutting we remove the leaves, or the greater part of them. Leaving on all the leaves will be the death of the plant. Cut off all but a few of the youngest leaves just started; and if the leaves are large, clip off a half or more of each leaf. The women who understand making "slips" from geraniums and similar house-plants understand this. Now, when your plant is placed in good soil give it a moderate wetting—not too much; then confine the moist air by means of your tumbler or fruit-jar. The plant needs the light; but the leaves cannot stand a dry atmosphere, on account of its disturbance and the mutilation of its roots. A glass receptacle gives light and holds the moist air until the plant can recover. The covering may be removed during the night, and put back again the next day when the sun is well up. After you get the knack of making things grow in spite of transplanting, going through the mails, etc., it is an easy matter to succeed.

Convention Notices

A summer meeting of the New Jersey Beekeepers' Association, July 8, will be held at the apiary of Robert Spicer, Wharton, Morris Co., N. J., reached by D. L. & W. R. R., and C. of N. J. An interesting program is being prepared.

New Egypt, N. J., May 19. E. G. CARE, Sec.

IOWA SUMMER MEETINGS

The Iowa Beekeepers' Association has arranged for a series of summer meetings, the first of which was held on May 19 and the last will be held Aug. 20. Most of these meetings will be in the nature of picnics. Everybody will bring a basket of lunch, the wife and babies, and enjoy the day.

At Colo, June 10, the Ladies' Aid Society will serve dinner at a reasonable price, and the field meet will be held at the Hall home apiary, which is within easy reach of the station. Mr. Hall's big honey-house will be used for a convention hall in case of rain. Professor C. E. Bartholomew, of Ames, will give the principal address. So much interest has been manifested in the Hall methods of honey production that a good attendance is assured.

At Forest City, June 17, the meeting will be held on the grounds of Hon. Eugene Secor, former president of the National, and one of the best-known bee-keepers of the middle West, who has kept bees continuously in his present location for forty years. It

is hoped that a liberal representation of Minnesota beekeepers will be present here, as it is but a few miles from the State line.

At Des Moines, July 15, a big day is planned at the Dustman apiary, which is convenient to the car line. The committee is planning a series of interesting demonstrations. The central location and splendid railroad facilities from all directions make Des Moines very easy of access.

At Mt. Pleasant, July 28, is to be held the fifth field meet of the season. The committee is already making plans for the program with C. P. Dadant, of Illinois, as one of the speakers. Beekeepers from Western Illinois and Northeast Missouri will find Mt. Pleasant easy to reach, and should plan to come.

On August 12, at Clarinda, the friends from Nebraska and Missouri will find a point easy of access, and the Strong apiary will be the place of meeting. Mr. Strong, the well-known queen-breeders, has been keeping bees for almost half a century, and will demonstrate his methods of queen-rearing. The program will be announced later.

For several years the beekeepers in the vicinity of Sioux City have held a tri-state meeting, the date of which this year is set for Aug. 20. Friends from South Dakota and Nebraska meet with Iowa beekeepers for an annual picnic at Riverside, and the committee in charge always plan an interesting time.

The meeting at Delmar, Ia., will be held July 7 at the Coverdale farm. Mr. Coverdale has become famous as a grower of sweet clover, and is considered by many of the agricultural papers as authority on the subject. He will have experimental plots showing what sweet clover will do when handled scientifically. Mr. Coverdale will deliver an address, explaining what sweet clover will do for the farmer and stock-raiser. Any one contemplating sowing sweet clover can well afford to make a trip across the State to hear Mr. Coverdale and see his experimental plots as well as his large acreage.

Mr. C. P. Dadant, of Hamilton, Ill., is too well known to need an introduction. He will deliver an address that will be of much interest. Mr. Dadant has been left to choose his own subject. Being a very keen, well-educated man, you may rest assured he will have something to say. Every beekeeper of any consequence has heard of "Dadant." It is a household word. Who hasn't heard of "Dadant's foundation"? Every beekeeper who is within reasonable distance should not fail to hear Mr. Dadant. It will be time well spent.

Mr. Frank C. Pellett, Iowa's State Bee Inspector, will also speak on foul-brood conditions in Iowa, foul-brood laws, etc. Mr. Pellett is also president of our State association, and a live wire. He is also a lecturer of some note. Mr. Pellett isn't very large, but you will know he is at the meeting all right. Don't forget the basket dinner. Other subjects will be discussed informally, but the three addresses will be well worth your time and money to attend. Let everybody come, whether a beekeeper or not, and let every beekeeper in the northeast quarter boost for the Delmar meeting.

W. S. PANGBURN.

Center Junction, Ia., May 14.

A KIND WORD FROM PROHIBITION KANSAS.

Dear Mr. Root:—I don't want my subscription to stop, for it was through reading *GLEANINGS* that I have become interested in bees. I was first attracted by reading *Our Homes*. I would then scan an occasional article on bees, and soon became very much interested—so much so that I subscribed for *GLEANINGS*, and purchased a copy of the A. B. C., and, consequently, I am now the happy possessor of two colonies of bees, or, rather, one and a half.

Yes, Mr. Root, I am happy to say that all our Governor says about prohibition in Kansas is true. I have lived in a town of ten thousand inhabitants for fifteen years; am on the streets every day, and have in all that time seen but one intoxicated man.

We have a State normal school here with an annual enrollment of 2700 students, and the majority of these young people have grown to manhood and womanhood without ever having seen a saloon. As I am a native of your State, and love her with all her faults, I must say there is no comparison between living in a strictly prohibition State and one that legalizes the liquor-traffic. Our Kansas motto is, "The saloon has no excuse for existence."

Emporia, Kan., Nov. 6. ETTA E. DICKEN.

Honey-Cans

We have made especial efforts this season to supply our patrons with cans and cases of the finest quality, and we have now in our warehouse a complete stock ready for immediate shipment to you.

There is much satisfaction in knowing that there is a dependable source of supply so near to all Texas Beekeepers, and others in the great Southwest. Experience has taught us to anticipate properly the needs of our patrons, and we have as yet failed to fall down at a critical time. Sometimes we feel that it is not wise for Beekeepers to trust entirely to the supply house for eleventh-hour assistance, but we concentrate our energies, nevertheless, on complete preparation, and when you are ready we are. Write us for prices.

Weed's New Process Comb Foundation

We have made extensive improvements in our comb-foundation factory this season at a great expense, and are now operating day and night under the supervision of a man direct from The A. I. Root Company, who has had many years of experience in the manufacture of this product. When placing your order with us you are assured of receiving Comb Foundation of unexcelled quality.

Sell Us Your Honey and Beeswax

We desire as usual to buy all the first-class white honey we can obtain. We are now paying for bulk comb honey of the above grade, properly put up f. o. b. the beekeeper's railroad shipping point:

2 Sixties	10c per lb	10 Twelves	$10\frac{1}{2}$ c per lb
10 Sixes	11c per lb	20 Threes	$11\frac{1}{2}$ c per lb

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A full line of Root's Beekeepers' Supplies on hand at all times ready for immediate shipment.

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You'll get satisfaction out of these fine heavy shears—not for a few months, but for years. They'll keep to hard work, too, and never a quit out of them. The points will keep their fine adjustment, the joints won't work loose and the blades will take and keep a fine cutting edge.

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scissors and shears make good. They're like Keen Kutter Tools and Pocket Knives. They have the fine temper, the beautiful finish and the quality of stuff in them that makes them good enough to bear the Keen Kutter trade mark. If any Keen Kutter tool or piece of cutlery isn't satisfactory, the dealer is authorized to refund the money.

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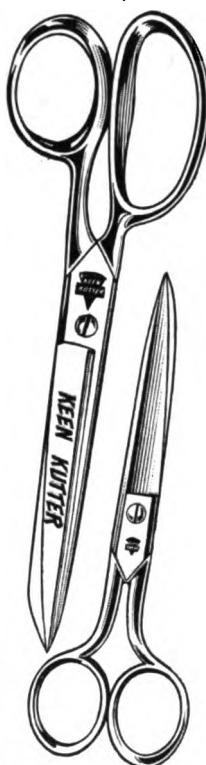
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SIMMONS HARDWARE COMPANY

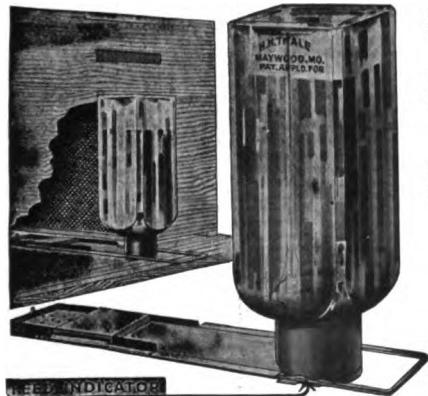
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Pleaseas everywhere. Not a dissatisfied customer. Let me double your honey crop by stimulative feeding. Most practical method known. Send 55c in stamps to-day for a sample feeder.

Status, Wash., May 4, 1914.

H. H. Thale, Maywood, Mo.—Your feeders work perfect. They are better than any feeder I ever used. I am using them side by side with other feeders and like yours the best.

Yours truly, J. A. McCowan.

St. Anne, Ill., April 14, 1914.
H. H. Thale:—Please send me five more feeders with bottles. I am well pleased with the ten I got some time ago. I don't think that any one will be sorry of his investment, as they are the best feeders I have ever used, and I have tried all of them.

Yours truly, C. W. Dyon.

TERMS, CASH WITH ORDER

Sample Feeder, with two bottles complete, postpaid,	\$.55
10 Feeders, with one bottle for each feeder,	3.00
25 " "	7.50
50 " "	15.00
Extra bottles with cork valve, each,10

Eastern buyers send orders to Earl M. Nichols, Lyonsville, Mass.; B. H. Masters, Edison, Ohio, and Harry W. Martin, New Holland, Pa. Northern buyers send orders to Minnesota Bee Supply Company, Minneapolis, Minnesota

H. H. THALE, INVENTOR AND MANUFACTURER Box C25, MAYWOOD, MISSOURI

POLLYANNA THE GLAD BOOK

By ELEANOR H. PORTER, author of
“Miss Billy” and “Miss Billy’s Decision”

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The book, POLLYANNA, has been one of the best-selling books of the season because of the winsomeness of the story.

Pollyanna, a lovable little lass, is the daughter of a minister in the West. She is left an orphan and is sent back East to make her home with a staid and prejudiced maiden aunt. In winning the affection of her aunt and the respect of the villagers, she finds a place in the hearts of all her readers.

Send for the book as a surprise for the young people of the family who will enjoy Pollyanna’s “Glad Game” as much as will the older readers. A little romance in the life of the aunt forms the plot of the story, and the reader finds himself wondering again and again how it will end.

As long as our supply lasts, we are offering a copy of POLLYANNA and GLEANINGS IN BEE CULTURE one year for \$1.50.

Twelfth Printing

Read some of the Press Comments:

“Pollyanna is the ‘gladdest’ book that was ever written. It is of more real value than any thousand sermons to which I have ever listened.”—**Passaic Daily News.**

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“Pollyanna is a delightful character, and the book refreshingly natural.”—**Cedar Rapids Record.**

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FOUNDATION—This is an excellent time to order foundation and to put it into sections and frames, now when you have the spare time, thus preparing you to go into the season with a good start. Here's what Mr. J. J. Wilder, Cordele, Ga., says about our foundation: "Your foundation is the best I ever bought, and I am more than pleased with it." Mr. Wilder is one of the largest beekeepers in the country.

SUPERS—Supers can be nailed and painted, and filled with sections and starters, by ordering your requirements now. You can not afford to be without supers when the rush comes. Get your order in for "falcon" supers now before the swarming season begins.

Send for our foundation samples and new Red Catalog, postpaid.

Dealers Everywhere:

New England States, Ross Bros. Co., 90 Front Street, Worcester, Mass.
Central States, The Fred W. Muth Co., 204 Walnut St., Cincinnati, Ohio.
Western States, C. C. Clemons Bee Supply Co., 128 Grand Ave., Kansas City, Mo.
Southern States, J. J. Wilder, Cordele, Ga., and many others here and abroad.

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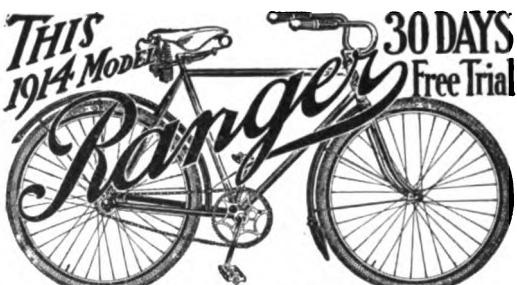


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WRITE TODAY for our big catalog showing our full line of bicycles for men and women, boys and girls at prices never before equaled for like quality. It is a cyclopedia of bicycles, sundries and useful articles. Trial's free.

TIRES, COASTERS, BRAKES rear wheel, inner tube, lamps, eyemometers, equipment and parts for all bicycles at half usual prices. A limited number of second hand bicycles taken in trade by our retail stores will be closed out at once, at \$3 to \$8 each.

RIDER AGENTS wanted in each town and district to ride and exhibit a sample 1914 model **Ranger** furnished by us.

It Costs You Nothing to learn what we offer you and how we can do it. You will be astonished and convinced. **Do not buy a bicycle, tires or sundries until you get our catalog and new low prices and marvelous offers. Write today.**

MEAD CYCLE CO., Dept. K 113, CHICAGO, ILL.

HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

NATIONAL BEEKEEPERS' ASSOCIATION GRADING-RULES

Adopted at Cincinnati, Feb. 18, 1918.

Sections of comb honey are to be graded: First, as to finish; second, as to color of honey; and third, as to weight. The sections of honey in any given case are to be so nearly alike in these three respects that any section shall be representative of the contents of the case.

I. FINISH:

1. *Extra Fancy*.—Sections to be evenly filled, comb firmly attached to the four sides, the section to be free from propolis or other pronounced stain, combs and cappings white, and not more than six unsealed cells on either side.

2. *Fancy*.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white, and not more than six unsealed cells on either side exclusive of the outside row.

3. *No. 1*.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white to slightly off color, and not more than 40 unsealed cells, exclusive of the outside row.

4. *No. 2*.—Comb not projecting beyond the box, attached to the sides not less than two-thirds of the way around, and not more than 60 unsealed cells exclusive of the row adjacent to the box.

II. COLOR:

On the basis of color of the honey, comb honey is to be classified as: first, white; second, light amber; third, amber; and fourth, dark.

III. WEIGHT:

1. *Heavy*.—No section designated as heavy to weigh less than fourteen ounces.

2. *Medium*.—No section designated as medium to weigh less than twelve ounces.

3. *Light*.—No section designated as light to weigh less than ten ounces.

In describing honey, three words or symbols are to be used, the first being descriptive of the finish, the second of color, and the third of weight. As for example: Fancy, white, heavy (F-W-H); No. 1, amber, medium (1-A-M), etc. In this way any of the possible combinations of finish, color, and weight can be briefly described.

**JUST
OUT!**

New 1914 Catalog -- "Everything for Bees"

Lay your plans for the new season now. Send for the 1914 Muth Catalog of Beekeepers' Supplies. It's just off the press. In it you will find full information about the remarkable MUTH SPECIAL Dovetailed Hives. Drop a postal card at once---sure!

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"The Busy Bee Men"

CINCINNATI, OHIO

P. S.—Ship us your old combs and cappings and let us render them for you. Our process extracts the last drop of wax from the slumgum. This means money for you. Write for full particulars.

CULL HONEY:

Cull honey shall consist of the following: Honey packed in soiled second-hand cases or that in badly stained or propolized sections; sections containing pollen, honey-dew honey, honey showing signs of granulation, poorly ripened; sour or "weeping" honey; sections with comb projecting beyond the box or well attached to the box less than two-thirds the distance around its inner surface; sections with more than 60 unsealed cells, exclusive of the row adjacent to the box; leaking, injured, or patched-up sections; sections weighing less than ten ounces.

HONEY GRADING RULES ADOPTED BY THE COLORADO STATE BEEKEEPERS' ASSOCIATION,
DECEMBER 18, 1911.

FANCY WHITE.—Sections to be well filled, comb firmly attached to all sides and evenly capped except the outside row next to the wood. Honey, combs, and cappings white, and not projecting beyond the wood; wood to be well cleaned; no sections in this grade to weigh less than 13 $\frac{1}{2}$ ounces.

No. 1.—Sections to be well filled, combs firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey white or very slightly off color. Combs not projecting beyond the wood; wood to be well cleaned; no section in this grade to weigh less than 13 $\frac{1}{2}$ ounces.

CHOICE.—Sections to be well filled; combs firmly attached; not projecting beyond the wood, and entirely capped, except the outside row next to the wood. Honey, comb, and cappings from white to amber, but not dark; wood to be well cleaned; no section in this grade to weigh less than 12 ounces.

No. 2.—This grade is composed of sections that are entirely capped, except row next to wood, weighing from ten to twelve ounces or more, also of such sections that weigh 12 ounces or more, and have not more than 50 uncapped cells all together, which must be filled. Combs and cappings from white to amber in color, but not dark; wood to be well cleaned.

EXTRACTED HONEY.—Must be thoroughly ripened, weigh 12 pounds per gallon. It must be well strained, and packed in new cans. It is classed as white, light amber, and amber.

STRAINED HONEY.—This is honey obtained from combs by all other means than the centrifugal extractors, and is classed as white, light amber, amber, and dark; it must be thoroughly ripened and well strained. It may be put up in cans that previously have contained honey.

DENVER.—Regarding the honey market, we have no more comb honey to offer. We are jobbing extracted honey as follows: White extracted, 8; light amber, 7. We pay 32 cts. per pound cash and 34 in trade for clean yellow wax delivered here.

COLORADO HONEY-PRODUCERS' ASSOCIATION,
Denver, Col., June 1. F. RAUCHFUSS, Mgr.

INDIANAPOLIS.—Fancy white comb is being offered here at 16 to 17 cents per pound; amber comb, 14 to 15; white-clover extracted, 9 to 10 in 5-gallon cans. Much comb honey is being held here; but at this writing there is very little demand. Extracted is in fair demand. Producers are being paid 32 cents cash for beeswax, or 34 in trade.

Indianapolis, June 1 WALTER S. PODER.

SPECIAL DELIVERY

During this month we shall double our usual efforts in points of delivery and service. We carry nothing but the Root make, which insures the best quality of every thing. We sell at factory prices, thereby insuring a uniform rate to every one. The saving on transportation charges from Cincinnati to points south of us will mean quite an item to beekeepers in this territory. We are so located that we can make immediate shipment of any order the day it is received.

New 64-page Catalog

Our new 1914 catalog contains double the pages of former editions and requires extra postage. It is filled from cover to cover with complete lists of goods in every line to meet every requirement of beekeepers. If you haven't received a copy when you read this, be sure to ask for one. It will save you money.

New Features for 1914

Few radical changes have been made this season. It should be noted, however, that we will send out with regular hives, unless otherwise ordered, the metal telescopic or R cover with super cover underneath. The side rail for the bottom-board will be extra length so as to overcome the difficulty experienced by some last season. Improvements have been made in extractors. We shall carry a very heavy stock so that orders may be filled with our usual promptness. Write us your needs.

C. H. W. Weber & Co.

2146 Central Avenue

Cincinnati, Ohio

Gleanings in Bee Culture

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Editor

A. I. ROOT
Editor Home Dept.

H. H. ROOT
Ass't Editor

J. T. CALVERT
Business Mgr.

Department Editors:—Dr. C. C. Miller, J. E. Crane, Louis H. Scholl, G. M. Doolittle, Wesley Foster, J. L. Byer, P. C. Chadwick.

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DISCONTINUANCES. Notice is given just before expiration. Subscribers are urged, if unable to make payment at once after expiration, to notify us when they can do so. Any one wishing his subscription discontinued should so advise us upon receipt of the expiration notice; otherwise it will be assumed that he wishes GLEANINGS continued and will pay for it soon.

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AGENTS. Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

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Honey reports continued from page 8.

BOSTON.—We quote fancy and No. 1 white comb honey at 15 to 18; fancy white extracted in 60-lb. cans, 9 to 60-lb. cans, 11. Beeswax, 30.

Boston, June 1. BLAKE-LEE CO.

ZANESVILLE.—No. 1 to fancy white comb is quoted at 16½ to 18½ in a jobbing way; 18 to 20 wholesale. Best white extracted in 60-lb. cans, 9 to 10. These quotations are for white clover. Western honeys rule about a cent less. Market firm, but rather quiet. Producers receive for beeswax 32 to 33 cash, 34 to 35 in exchange for supplies.

Zanesville, June 1. EDMUND W. PEIRCE.

LIVERPOOL.—Buyers of new crop Chilian honey for shipment at \$4.92 per 100 lbs., c. i. f., average pile 3. The spot market is flat. For pile 1, \$6.48 to \$7.20 is quoted, white to yellow; \$6.00 for pile 2, yellow; \$6.00 for pile 3, yellow to brown; \$4.56 to \$4.80—fermented, etc. For Chilian beeswax the spot prices quoted do not attract buyers. The nominal value is \$34.02 to \$42.48 per 100 lbs., according to quality.

Liverpool, May 26. TAYLOR & CO.

KANSAS CITY.—Our market is about cleaned up on comb honey—not a case left in the wholesalers' hands, and very little left in the retailers'. Plenty of extracted honey, and the demand is very light. New comb honey in 24 sections would sell for \$3.25 to \$3.50 per case for No. 1 quality. We quote extracted white at 7½ to 8. On beeswax we quote 30 for No. 1 quality, and 25 for No. 2.

C. C. CLEMONS PRODUCE CO.

Kansas City, Mo., June 1.

NEW YORK.—As to comb honey, we have nothing new to report. There are some off grades of amber still on the market unsold, as there is no demand to speak of for those grades, and it is almost impossible to find buyers. In regard to extracted, the demand is only fair while arrivals are large, especially from the West Indies, and the new crop is now beginning to arrive from the southern States. We quote nominally from 58 to 75 cts. per gallon, according to quality. Beeswax is firm at 34 to 35.

New York, June 1. HILDRETH & SEGELKEN.

ST. LOUIS.—The honey market is very dull at present. We are quoting southern extracted and strained bright amber honey in barrels at 5½ to 6½; in cans, 6 to 7; dark, ¾ to 1 ct. per lb. less. Comb honey, fancy clover brings from 14 to 15; light amber, 12 to 14; broken and leaky from 7 to 8. By the case, fancy white-clover comb honey brings from \$3 to \$3.25, or light amber from \$2.25 to \$2.50; dark and inferior, \$2.00. Beeswax is very scarce, and wanted; quoted prime at 35; inferior and impure, less.

R. HARTMANN PRODUCE CO.

St. Louis, June 1.

A KIND WORD FROM IDAHO.

Dear Mr. Root:—The writer has enjoyed your Home talks for all these years, and especially since I have become more diligent as a laborer in the vineyard of Jesus. I have been making use of extracts from your Homes in our Endeavor, and the young people are interested.

As president of our Loyal Men's class of our Christian Church Sunday-school I realize how hard it is to get men of mature years to enroll in Bible study, and I enjoyed and admired the zeal and tact of Brother Thompson in broaching the subject to you, leaving you alone with your thoughts at the proper time, and then helping you to make the decision through his pleading voice and the tender look of his eyes, full of compassion for his neighbors. It meant much to him, but still more to you, for it no doubt was the turning-point of your life, and embodies the thought that I love to call attention to in our different meetings—how little it sometimes takes to make a Christian! and how careful we ought to be not to let an opportunity pass by to do our part.

The State-wide prohibition convention held in this city has just been brought to a close. You will rejoice with us in our endeavor to make Idaho the first dry State west of the Rockies. We declared for prohibition by legislative enactment, and by an

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BANKING by mail, in addition to affording a convenient method of making deposits with a strong bank located at a distance, promotes industry and thrift.

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E.R. ROOT, Vice-Pres.
E.B. SPITZER, Cashier

ASSETS OVER ONE MILLION DOLLARS

BEE SUPPLIES

Send your name for
new 1914 catalog out
in January.

Dept. T, CLEMONS BEE SUPPLY CO.,

128 Grand Ave., Kansas City, Mo.

amendment to the constitution of Idaho, which will forever prohibit, in this State, the manufacture, sale, importation, and transportation of intoxicating liquors to be used as a beverage.

A goodly number of Nez Perce Indians were in attendance, taking active part in addresses on the subject, and calling attention to the fact that they, as a tribe, inaugurated the fight against this great evil in their first treaty in 1855, and in every subsequent treaty with the government.

Lewiston, Idaho, March 9. A. A. HANSEN.

Gleanings in Bee Culture

DEVOTED TO HONEY, BEES, AND HOME INTERESTS

Established 1873

CIRCULATION 35,000

Issued semi-monthly

A. L. BOYDEN, Advertising Manager

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**NEW BINGHAM
BEE SMOKER**

Patented

The Bingham Bee-smoker

nearly forty years on the market, and the standard in this and many foreign countries. The all-important tool of the most extensive honey-producers of the world. Such men as Mr. France and the Dadants use the Bingham. By co-operation Mr. Townsend uses six Smoke Engines. For sale at your dealers' or direct. Postage extra.

Smoke Engine, 4-inch stove; wt. each, 1½ lb. \$1.25

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Two larger sizes in copper, extra .50

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Little Wonder, 2½-inch stove; wt. each, 1 lb. .50

Two largest sizes with hinged cover.

**Woodman
Style
Veils**

Our veils contain 1½ yards of the best material for the purpose—imported French tulle veiling. They are made

with a rubber cord in the top to fit around the hat, and the lower edge has the cord arrangement shown above, the two ends going around behind the body, and back in front to tie. This arrangement holds the veil down on the shoulders snugly, away from the neck, and permits the wearer to handle bees in his shirt sleeves with no chance of bees crawling up and under veil. With a hat of fair size brim to carry veil away from the face you are as secure from stings, movements as free and unrestricted, and as cool and comfortable as you would be at a summer resort.

All cotton, each, postpaid,	\$.50
Cotton with silk face, each, postpaid,	.60
Bee-hat, flexible rim, fits any head, postpaid,	.35
Extra silk face piece, postpaid.	.10
Long-sleeve bee-gloves	.55

Such men as R. F. Holtermann, J. E. Crane & Son, N. E. France, and many others all over the U. S. A., order a supply of these veils each season, year after year.



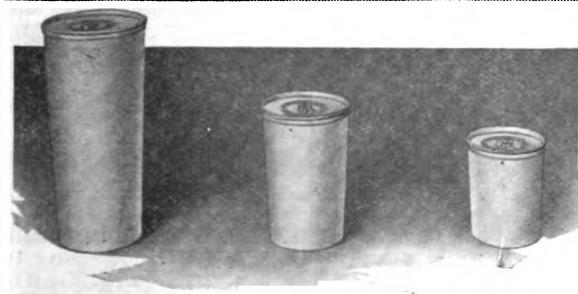
A. G. Woodman Company, Grand Rapids, Mich.

Containers for Comb and Extracted Honey

We offer this year a very complete line of cartons for comb honey—any size or color, with any desired printing. Bottles, jars, and cans for extracted honey with capacity ranging from that of a tumbler to a barrel. Special attention is directed to our assortment of Friction-top Pails and to tin cans of $\frac{1}{2}$, 1, and 5 gallon capacity. Get full information, prices, and samples.

The A. I. Root Company, - - - - - Medina, Ohio

These liquid-proof
Sanitary
Paper Bottles
are the ideal containers
for packing extracted
honey. Write for il-
lustrated folder
and prices.



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For catalog and inquiries write at once : : :

Emile Bondonneau

Root's General Agent for Eastern Europe and Colonies

154 Ave. Emile Zola, Paris 15 (France)

"ROOT" "PEIRCE" "ZANESVILLE"

Three words that unlock the possibilities of successful beekeeping.

"ROOT QUALITY" has always represented the acme of perfection in every thing pertaining to bees.

"PEIRCE SERVICE" is fast becoming a synonym for promptness coupled with courtesy and fairness.

ZANESVILLE—the metropolis of eastern and southern Ohio—is the logical distributing-point for the beekeepers of Ohio, West Virginia, and western Pennsylvania; and those more remote can be served with a large degree of satisfaction on account of the superior shipping facilities of this city.

Our 1914 Catalog of Beekeepers' Supplies and Introduction to Beekeeping is now being sent to those on our mailing-list. If you have not already received or do not receive it soon, a postal-card request will insure your receiving it without delay.

Prospects for the coming season are unusually bright, and both prudence and economy would suggest the early placing of your order.

E. W. Peirce, Zanesville, O.

Airdome Bldg., South Sixth St.



For beginners or old-timers---lots of good tips on raising those wonderful little money-makers in this book --- describes our complete line of bee supplies. Bees help pay the grocery bill --- little expenses, fascinating pastime. Act on a good impulse, start right now.

Department 2

Blanke Mfg. & Supply Co.
St. Louis, Mo.



INCREASE Your SALES
... By a Liberal Distribution of Our Booklet ...
THE USE OF HONEY IN COOKING

The 1913 edition is ready for distribution, and may be had in quantities at reasonable rates. The back cover page affords space for a display advertisement. As this booklet contains no advertising whatever, it can be employed with telling effect. Better order your supply early. Sample and prices in quantities on application. Fifty-eight pages; one hundred and twenty-five valuable recipes in which honey is used. Just the book for every household. A two-cent stamp will bring a copy.

Address the Publishers

THE A. I. ROOT COMPANY, MEDINA, OHIO

FLORIDA For 10 Cents
Two months' trial subscription to Florida's only Agricultural weekly. Tells facts. Answers questions about soils and crops. FLORIDA GROWER, Box B, Tampa, Fla.

Keep Well by Using Well "ROOT'S" GOODS

The Very Foundation
of Modern Beekeeping

Better let us send you a catalog of Root's, that you may be able to select the kind that will enable you to have a healthy and prosperous summer.

**The A. I. Root Co., Syracuse, N. Y.
1631 West Genesee Street**

Beeswax Wanted!

We Expect to Use
SEVENTY TONS

of beeswax during the next SIX MONTHS, and we have on hand less than twenty tons. We offer for good average wax, delivered at Medina, 33 cts. CASH, 35 cts. TRADE. If you have any good wax to sell write to us or ship it by freight. Send us shipping receipt, giving us gross weight also net weight shipped. Be sure to mark your shipment so we can identify it when received.

Beeswax Worked into Foundation

If you want your wax worked into foundation we are prepared to do this for you at prices equal to those made by other standard manufacturers. Write for price if interested.

The A. I. Root Co., Medina, Ohio

"If goods are wanted quick, send to Pouder."

ESTABLISHED 1889

When You Think of Bee Supplies, Think of Pouder

A very complete stock of goods on hand, and new arrivals from factory with an occasional carload to keep my stock complete. Shipments are being made every day, and the number of early orders received is very encouraging. Numerous orders reached me during our February and March blizzards, which indicates that the beekeepers have confidence in the coming season.

My new catalogs have been distributed. If any of my friends have failed to receive theirs, please write for another. If more convenient you may make up your order from the Root Catalog--our prices being identical. For very large orders at one shipment, write for an estimate, and I can save you something by following the factory schedule.

I shall be glad to hear from my friends as to how bees are wintering and springing, and as to prospects for clover.

Walter S. Pouder
873 Mass. Ave., Indianapolis, Indiana

Indicate on a postal which of the catalogs named below you are interested in — They are Yours for the Asking.

CATALOG A.—BEE-SUPPLIES, listing every thing a beekeeper needs for his bees. Our goods are all "Root Quality," and we can save you time and freight expense in getting them. Let us furnish you with an estimate on your needs for the season.

CATALOG B.—BEES AND QUEENS. Mr. M. H. Hunt has charge of our queen-rearing apiary. We specialize in choice Italian queens, three-banded and golden, and bees by the pound. Orders filled in rotation as received.

CATALOG C.—BERRY SUPPLIES. We carry a full stock of standard quart baskets and 16-quart crates. **BEESWAX WANTED**.

M. H. HUNT & SON, 510 North Cedar Street, LANSING, MICHIGAN

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The A. I. Root Co.

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New Goods Factory Prices Save Freight

CULL & WILLIAMS CO.
Providence, R. I.

Are Your Bees Short of Stores?

We have candy in large paper pie-plates just right for late winter and early spring feeding. Write for prices.

We carry a full line of supplies at all times.

H. H. JEPSON
182 Friend Street BOSTON, MASS.

YOU will need bees or supplies during the coming season. We can save you money. Our catalog, which is free, will show you. Italian queens, \$1.10. *

I. J. Stringham, 105 Park Place, N. Y.
Apitaries, Glen Cove, L. I.



Beekeepers' Supplies

Our 1914 64-page catalog ready to mail you free. . . Can make prompt shipment of regular-stock goods, as we have a good supply of The A. I. Root Co.'s goods on hand. The rush season will soon be on hand. Our freight facilities are good. Small packages we can rush through by parcel post. Express rates are much lower now also. Let us quote you. Let us hear from you. Beeswax taken in exchange for supplies or cash.

JOHN NEBEL & SON SUPPLY CO.
High Hill, Montgomery Co., Mo.

"Griggs Saves You Freight"

TOLEDO

"Griggs Saves You Freight"

With four carloads of new goods on hand, we are now better prepared for the rush than ever. But don't wait to be in the RUSH. Send your order in now, and have the goods on hand, ready for use.

New Illustrated Catalog of 60 Pages

We want one in every beekeeper's hands. Send postal for one to-day. It is free.

White-clover Extracted Honey Wanted, also Beeswax
in exchange for supplies. It will be to your interest to get in touch and keep in touch with us.

S. J. GRIGGS & CO., - 26 NORTH ERIC STREET, - TOLEDO, OHIO

Be Careful of Your Honey Crop

Now that you are through with all the anxious work preliminary to gathering in the honey

**Look to it that your crop goes on the market right!
See that your honey is in Lewis sections.**

The sections that are scientifically right—made out of nice bright Wisconsin basswood.
The manufacture of LEWIS SECTIONS is watched over by experts.
LEWIS SECTIONS fold perfectly.

Lewis Shipping-cases are Superb

Do not cheapen your product by inferior cases. You can afford the best. Remember, your shipping-cases are the show-windows for the sale of your goods. Your honey will bring more money if well displayed.

Insist on the Lewis Make

G. B. LEWIS CO., Sole Manufacturers **Watertown, Wis.**
Thirty Distributing Houses. Send for the Name of the one nearest you.

HAVE YOU SEEN IT?

. . . THE . . .

NEW American Bee Journal IT PLEASES

Your bee journal is the finest of all those I receive in exchange. What a variety in the contributions! what competency in its editorials! what wealth in its illustrations!

A. WATHELET, Editor of the *Rucher Belge*.
Prayon-Trooz, Belgium, June 1, 1913.

NEW Editor NEW Cover NEW Manager

Select Material

Illustrated

Free Sample Copy

\$1.00 a Year.

C. P. DADANT

DR. C. C. MILLER

American Bee Journal, Hamilton, Illinois

Gleanings in Bee Culture

Published by The A. I. Root Co., Medina, Ohio.

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VOL. XLII.

JUNE 15, 1914

NO. 12

EDITORIALS

A Big Supply Year

THE year 1914 will reach the high-water mark in the demand for bee-supplies. So far as we know, all the bee-supply manufacturers in the country have had a bigger demand for goods than in all their history. This looks as if the bee business were looking up. The great season of 1913, with a promise of another good one, has boomed the supply business away beyond normal.

Unusual Field-Day Meeting for Iowa Beekeepers

THE beekeepers of Iowa are to have an unusual opportunity to become acquainted with Frank Coverdale, of Delmar, Iowa, who has a national reputation as an authority on the growing of sweet clover. In the brief mention of this meeting in GLEANINGS under Convention Notices the date is given as July 7.

Beekeepers and farmers in general are going to know very much more about sweet clover ten years hence than they know now. Mr. Coverdale is one of the pioneers in finding new values of this old plant.

A Greater Demand for Power-driven Extractors

THE large honey-producers of the country are beginning to see that they cannot afford to take their honey with hand-driven extractors. One by one, the large producers are adopting the big outfits. They not only extract honey more cheaply, but, what is of considerable importance, they extract the combs cleaner. And here is still one more fact: The bigger the extractor, the less out of balance the reel will be on account of uneven weight of combs.

While the first cost of the machines is considerably more, they are not more expensive than a lot of little ones scattered around at all the outyards. In this day and age of the world it pays to draw the combs to one

central extracting-plant, and cart them back again. For this purpose a small motor truck is far more satisfactory than a heavy machine.

Slightly Exaggerated Again

WE observe that Mr. H. G. Quirin, the queen-breeder at Bellevue, Ohio, according to the newspapers, will send out about six million queens this coming season from his place. Our subscriber who directed our attention to this suggests that our project at Apalachicola is a dismal failure in comparison.

We only mention this as another sample of newspaper exaggeration. The probabilities are that Mr. Quirin told the correspondent that he would probably raise somewhere around six thousand queens, and this might be possible. If Mr. Quirin should raise six million queens in a year, and he does his work all alone, he would be some hustler. In fact, there wouldn't be any chance for the rest of us to rear queens.

An Enormous Demand for Early Queens in 1914

NEVER before in all the history of beedom was there such a demand for early queens. The bee-martin seriously handicapped the queen-rearing operations in Florida that were to supply us with early queens. We wired queen-breeders all over the country for queens; but every one of them was swamped with orders of his own. In the mean time complaints began to come in from dissatisfied customers who sent their money to some of these queen-breeders, and who had received nothing in return other than an acknowledgment of the receipt of the orders. There was a big demand for early queens last spring, but nothing as compared with this year.

Mr. A. B. Marchant, who was to supply us with queens, was unable to get them to us as fast as required. The main reason for this was the bee-martin that would nip

off his virgins as soon as they took their wedding-flight. One would think he could have cleaned them out with a shotgun; but they were too numerous.

The Prospects of the Season ; Prices, etc.

CLOVER is just opening up in this locality, June 10; and while there does not seem to be as much of it this year as last, there apparently will be a fair crop. Indications all over the clover area of the United States seem to show it will be good; but for all that, there may be a short crop. The excessive hot wave over the country may blight the crop yet. It is too early yet to make any positive predictions.

In the mean time there is some uneasiness over the matter of prices. There is no denying the fact that there was considerable honey left over from last season. Many producers held out for better prices, and in this they probably made a mistake. If there should be a good crop of clover again, and a fair crop of alfalfa, prices will be a little easier than last year.

We are requesting our subscribers to send postal-card reports from their respective localities. Do not write more than one or two sentences. If clover is scarce, say so; if the drouth and hot weather have been excessive, indicate that also.

Later.—Hot weather is drying up the clover, and bees are not doing much. It begins to look bad for clover.

A Handy Scythe for Beeyard Work

IT is not often that we refer to articles advertised in these columns; and when we do, it is *not* because we have been paid to do it. Our editorial space, and space in Special Notices, is not for sale at any price; but when we do mention favorably any article that has been advertised with us it is because it has unusual merit. A case in point is the imported scythe blades advertised by the Marugg Co., Department C, Tracy City, Tenn. The blade is very light and thin—almost as thin as a Gillette razor-blade, but it has a very rigid back. It is very wide nearest the handle, and tapers to a sharp point. The snath that goes with these blades is very light also. The tool as a whole is the handiest thing to mow around a hive with of any thing we have ever tried; and it is away ahead of a common scythe except for mowing brush. After you get the "hang" of it you will like it and wonder why we Americans do not use it more

generally. This same tool is used all over Europe.

We placed one in the hands of an old countryman. His eyes twinkled at once as he said, "Dot's de tool for me." And he knows how to sharpen it too.

The company furnishes a little anvil and hammer to hammer the blade, and then it has an edge given to it with a special whet-stone.

Safe Arrival of the two Last Carloads of Bees from Florida

THE last two carloads in charge of our two men, Mr. J. E. Marchant and J. P. Anthony, arrived at Medina June 2. In one of the cars we put 13,000 lbs. of tupelo honey that we extracted, and some wax that we had bought, billing the cars as "bees, honey, and wax." The other car had bees only. Mr. Marchant had planned to bring back 800 colonies and 500 three-frame nuclei; but he brought back 650 colonies, and nearly the full number of nuclei. The mosquito hawks (dragon-flies or devil's darning-needles, as some call them) are very destructive to bees and queens in the South at certain times of the year. Said Mr. Marchant, "These mosquito hawks did us nearly a thousand dollars of damage. They were so bad, indeed, that we were compelled to shut the bees in the hives in spite of the extremely hot weather. This necessarily caused some bees to worry and die; but the loss in this way was nothing in comparison with letting the bees fly, only to be killed by the thousands by these fell destroyers."

A northern man can scarcely realize how destructive these agents are. They come on at certain seasons in great swarms in different parts of Florida and in different months. Sometimes they come early and sometimes late. Said Mr. O. O. Poppleton, "It seems almost as though the bees learn to stay in their hives, as they easily recognize their natural enemies in this Southland."

Our recent trip through Florida was to find some place where mosquito hawks do not get in their destructive work, but we found no such place. The result of closing in our bees, together with the fearful work of the mosquito hawks, cut our shipment down nearly 150 colonies—at least we were that number short of our original estimate.

Our Mr. Marchant who went down and came back with the bees says this season has been one of the worst that was ever known. The cold backward weather delayed the blooming of the tupelos; and when they did come out the weather was so extremely hot and dry that they were in bloom only

about half as long as they usually are. But in spite of this he increased one carload of bees up to 650 colonies and 460 three-frame nuclei, took 13,000 lbs. of honey, and drew out nearly 6000 frames of foundation. Another year he thinks he can do much better, as conditions can hardly be worse.

Now, then, was the experiment a success? Even if we take into consideration that our increase and honey crop fell short, our scheme was not a failure by any means. The project will pay out, and leave us something to the good. In addition we acquired some valuable experience, all of which has been or will be given in these columns for the benefit of the public at large. When viewed from this standpoint our project was a big success. In all the history of beeedom we do not believe that any one ever before moved bees south, and made a three-and-half-to-one increase. It must not be forgotten that, in spite of the unfavorable weather, we drew out nearly 6000 frames of foundation into fine nice combs. We have always been short on combs; and we now have the nicest set of wired combs we ever had. If we leave out of the account entirely the publicity item, which we feel sure means a big boost to GLEANINGS, we are still on the good side of our ledger account.

As clover is very promising, and basswood looks well, our Florida project will pay out bigger yet if we get any kind of crop. We now have eleven yards of bees. The outyards run for honey will contain about 60 colonies, or what is the equivalent of two truckloads. Our light gasoline-truck is able to carry 30 colonies at a time. With this truck we can deposit enough bees at the outyard to make three or four yards in a day.

By the way, the big team and the wagon can haul only 30 colonies. It takes the team a good part of a whole forenoon to go to an outyard and back; but the gasoline-truck will do the same work in an hour; and, what is of considerable importance, it does not make any difference if there are a few bees leaking out of the hives.

There will be some further illustrations showing the whole project.

A Big Field-Day Meet at Medina

PREPARATIONS are under way for a big field day at Medina, July 9 and 10, under the auspices of the Ohio State Beekeepers' Association. At the last convention, held in Athens, it was decided to have a field day at Medina, on a date to be agreed on later. Many have desired to see the A. I. Root

Co.'s manufacturing plant, their queen-rearing operations, and the various methods for taking honey with a power extractor, a modern capping-melter and separator; and a few have said they desired to see A. I. Root himself, who has agreed to be at home on that day. In this connection, the President, Prof. W. A. Matheny, writes:

I fancy that I can hear all our beekeepers say they are anxious to see your father, A. I. Root. I trust that his health will be such that he will be able to give us a short talk. I confess to you that to see him is my motive in working up this meeting. Of course, I am anxious to go over your plant again, and I am anxious to have our beekeepers see what a wonderful place you have; but I know that every one will enjoy most the privilege of hearing A. I. Root.

Athens, O., May 29. W. A. MATHENY.

It is proper for us to state that, while we did not invite the State Association to hold its field day at Medina, the organization is more than welcome, as well as every one else who would like to be here on that day, whether they live in Ohio or not. Estimates have been made that there will be 500 people here, including a few prominent beekeepers from all over the country. It is quite possible that we can arrange to have the veteran Dr. C. C. Miller, of Marengo, Ill., and perhaps G. M. Doolittle. Mr. Doolittle is a good speaker as well as a writer. It is worth going a hundred miles to hear either of them talk.

The date is set in July so that beekeepers will not be tied up at home on account of their honey-flow.

As hotel accommodations are not extensive here, we shall probably have to arrange for one of our warehouse rooms where we can sleep the men on cot beds and straw. The women and children can probably be accommodated in the homes of the town.

We have never felt that it was proper for us to invite any beekeepers' organization to meet at Medina, on account of the indirect advertising it might give to our company; but when an organization takes the initiative, as the Ohio State Association has done, we are glad to co-operate in making their field-day a success. In this connection, every one who expects to come here will send a card to Prof. Matheny in order that he and ourselves may be able to make proper arrangements to accommodate the people.

Many will arrive on the afternoon of July 9; and while there will be some field-day operations on that day, the principal part of them will doubtless occur on the day following. We do not know what the program will be, but we suppose there will be addresses on the evening of the 9th as well as during the day of the 10th, accompanied by demonstrations.

Those near by can bring their lunches, while others will be served, probably, at 35 cents a meal at the hotels, restaurants, and by the ladies of some of the churches.

Some Wonderful Bee Country in the Cold Northwest

MR. G. C. RAHN, box 293, Haileybury, Ontario, Canada, called to see us a few days ago, and told us something about the possibilities of keeping bees in his part of Canada. As an evidence of what can be done by a man who thoroughly understands his business, he ordered from the southern part of the United States a number of pound packages of bees with queens. By careful stimulative feeding he built each of these pounds of bees into colonies so that they averaged that season from 70 to 75 lbs. of clover comb honey in Danzenbaker sections. He also has produced as high as 300 lbs. of comb honey from one colony, wintered in his cellar, spring count. He had other yields almost as good from other colonies he had wintered. It takes a good beekeeper, of course, to get yields like these, even in the best of localities. But no beekeeper, no matter how expert, could accomplish these results unless he were in a good locality.

There are large areas in his country where bees can be kept very profitably, especially after the land has been cleared. Willow-herb, raspberry, and clover follow on in quick succession. The cattle from the lower land, in their droppings distribute clover all over this newly cleared land. The timber is cleared off, leaving brush and stumps, which are burned down clean—root, branch, and stumps. The land will then be found in fine condition for cultivation, and will grow almost any thing that thrives in the Northern States—especially the clovers, which are very abundant.

As yet, beekeeping in his part of the country has not made much of a stir; but there are splendid opportunities for the practical, energetic beekeeper who learns thoroughly the locality; but probably only a few could make a success in that cold country. Bees have to be confined in cellars for 20 to 22 weeks, and during a part of the time the temperature has to be kept up by artificial heat. The temperature goes down to as low as 50 degrees below zero in winter, and in the summer it goes as high as 108. It is a country of extremes. The cold winter weather will kill off the bees by the wholesale unless one thoroughly understands the art of wintering, said Mr. Rahn. An ordinary cellar will not do. Some have built expensive concrete cellars; but the walls are

too cold and damp. Mr. Rahn has been successful in wintering his bees in a sort of log-house cellar. The walls are lined with logs, and the top is covered with logs, and then the whole is buried deep. The logs absorb the moisture, so that the bees winter very much better than in stone or concrete cellars. Taking it all in all, the problem of wintering in that country is a serious one, and only a few succeed.

Mr. Rahn is particularly interested in getting bees from Florida in May because he says he knows what he can do if he can get the bees early enough. If bees can be brought from the South in pound packages cheaply enough he can build them up into colonies in short order.

In this connection he indorses our plan of making increase in cellars. We told him that quite a number of expert beekeepers were inclined to poke fun at it as too visionary and too uncertain in results. Said he, "Mr. Root, the plan is all right. I have repeatedly put three-frame colonies in the cellar, and brought them out ten-frame in the spring, notwithstanding the temperature outside was far below zero practically all winter. I use and recommend for this purpose cakes of candy the same as you use and recommend."

Another thing he has learned is that, when the colonies are too strong for their winter stores, they are inclined to have dysentery; but he says a colony of moderate strength, with pure granulated-sugar candy, will have no dysentery, and will probably be stronger than when it went into winter quarters.

In speaking of the different races of bees, he was rather fond of the Caucasians, because they breed up so well and stand cold. They do not swarm any more for him than the Italians. Our friend J. J. Wilder, of Cordele, Ga., will take note as it confirms his experience with them in the Southland. With us they swarm as badly as the Carniolans.

We said to Mr. Rahn that doubtless many would like to settle in that country, and asked what was the procedure to get land. The Ontario Government is offering favorable inducements to settlers. The land is sold at fifty cents per acre in 160-acre plots; and when a patent is secured, fifty cents per acre more is required.

Our Canadian readers will be interested, and possibly some on this side of the line: but remember the winters are bitter and cold; and if you are going to keep bees it is important to know whether you or your families can stand such cold, even if you feel that you can winter the bees.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.

J. M. BUCHANAN, in your valuable list, p. 432, you give dandelion as a yielder of nectar. Here it yields much pollen as well. Your alsike is "almost equal to white clover." I think it's better in the North.

My women folk are daffy on grapefruit, taking it regularly every morning. But they object to taking the juice through a straw, as given by A. I. Root, p. 442, if that means "without any bitter," for they specially relish the bitter. And they don't want any sugar with it either.

J. L. BYER, the name you cannot recall, p. 338, is G. W. Demaree, and right you are to command his plan for prevention of swarming. You speak a little as if it is only to be used "if there are no signs of swarming at the time of the operation." If I am not greatly mistaken it works all right after cells are started, only you must cut them out, and the plan may even be used after swarming occurs.

YOU'RE right, Louis H. Scholl, p. 367, in commending "hives in pairs." If I am correct, that plan originated "in this locality," and you cannot urge too strongly that putting hives in pairs is practically spacing them further apart; in other words, by putting them in pairs you can exactly double the number of colonies on the same ground without at all increasing the danger of going to the wrong hive. [This scheme is all right.—ED.]

WESLEY FOSTER, you say, p. 327, that with a rapid uninterrupted flow a one-inch top-starter and $\frac{5}{8}$ bottom-starter works well. Won't that middle space contain much drone comb? and do you think that makes a nice finish? Besides, if you don't use excluders the queen will come up to lay in that drone comb; and if you do use excluders the bees will delay sealing, waiting for the queen to lay in it. I'm much interested in your contemplated experiments.

MAY 29 finds colonies strong in number. Dandelion is just closing a busy career, and white clover is beginning to bloom. It was never more plentiful, but will it "honey," as the Germans say? The ground is so full of water that clover can hardly dry up for some time, if it yields nectar at all. Will the knowledge that ten supers apiece are ready for them spur the bees to effort, or will it utterly discourage them? [This is a year of promise all over the country for clover districts, so far as we have been able to learn. The fact that the bee-supply manufacturers are all busy is significant.—ED.]

D. E. LHOMMEDIÉU's plan for draining cappings seems good. Save the cappings in a vessel with solid bottom without giving them a chance to drain—all the better if considerable honey is with them—then take a stamper perhaps $2\frac{1}{2}$ inches in diameter, which is cut off square at the lower end; stamp the cappings into fine pieces, and the honey will then drain readily from them when given an opportunity. The draining may be hastened by putting the cappings through a honey-extractor.

YOU say you don't catch on to my question, Mr. Editor, yet think the answer easy, p. 365. Glad if it puzzles you, if I can only get your attention to the sort of puzzles you're all the time handing out to your readers. If you had ventured an answer at all, like enough you would have said that if Smith gets 50 pounds of honey per colony, and Jones gets 60 pounds, then Jones has 20 per cent greater success than Smith, which may be quite right and may be very wrong, because of the loose statement in the question. If the two men produce the same kind of honey, 20 per cent is the right answer. But if Smith produces extracted and Jones comb, then 20 per cent is too small an answer; and if Smith produces comb and Jones extracted, then Smith is the more successful, according to general experience. I hope you've had so much guessing that you'll stop making your readers guess in every number of GLEANINGS when you let some contributor mention so many pounds of honey without specifying comb or extracted. And please, please, when mentioning foul brood, don't leave any uncertainty whether it's American or European. [When a correspondent does not tell whether he is referring to European or American foul brood or comb or extracted honey, we can not very well add the qualifying adjectives without danger of making him say what is possibly not true. It would be considerable trouble to write to every one, especially those who write only once a year or once in five years, to find out the specific thing referred to. About all we can do is to request our regular correspondents to say whether they mean comb or extracted honey or American or European foul brood, and we are making this request at this time. When, however, a correspondent describes his extracting outfit, or mentions it incidentally, it is hardly necessary for him to cumber up the article by adding the word "extracted" every time he refers to his crop.—ED.]

J. E. Crane

SIFTINGS

Middlebury, Vt.

I do not remember that we have ever had a chemical analysis of pollen. If we have had, we should know better what to substitute for it where it is lacking. I am coming more and more to appreciate the value of pollen and its stimulating effect upon brood-rearing.

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Mr. J. L. Byer, on page 248, says he is using hives made or painted by his grandfather thirty-two years ago still in fairly good condition. I think I can go you one better. I have double-walled hives in fairly good condition that I made and painted 44 years ago. My! how time flies!

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"Bees that cluster on the outside of the live are wasting their time," says Wesley Foster, page 614, Oct. 1, 1913. I don't feel sure about that. When honey is coming in freely a large amount of evaporating must be done, and I see no good reason why bees can not do this as well on the outside of the hive as on the inside—perhaps better.

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Mr. Byer, page 246, April 1, thinks that there is more danger from disease among bees in the city than in the country. I believe he is right. You may find them in an out-building or in an attic, or, as I did on one occasion, in the upper story of a barn. There is also greater danger of contracting disease from bottles of honey that have been emptied and thrown on a refuse-heap or from broken barrels, or packages of honey left where bees can get at them.

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A long time ago some one looked up at night and saw the stars, and said, "The heavens declare the glory of God, and the firmament sheweth his handiwork." And he was right, for they do. But it is just as true to-day that the hills and valleys, forests and fields, the birds, the bees, the flowers speak of his wisdom, goodness, and love. And it is just grand, these warm spring days, to go out in the midst of such surroundings and work with the bees. Let us not forget those who are confined to the workshop or factory, and thus rarely hear the song of birds or the hum of bees.

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SPRING DWINDLING IN VERMONT AND ITS CAUSE.

Bees were considered in good condition in western Vermont on April 1; but the 15th of May will find many yards in rather bad shape, with some dead colonies, and

many greatly reduced in number—in fact, we have had more or less spring dwindling.

What is the cause? Largely, weather conditions, I believe. The weather station near by reports the coldest April in over thirty years—some nine degrees lower during April than any other April since a record has been kept in Burlington, Vt., thirty-one years. What was worse than the average low temperature was the large number of severe freezes we have had. Every week the temperature fell so low as to kill most of the unsealed brood except in the strongest colonies. On May 1st the mercury stood at 26 degrees, and on the 13th the mountains east and west were white with snow that had fallen during the night.

Another difficulty was the shortage of pollen. The cold killed many flowers, and the weather was so cold that little could be gathered from such as withstood the frost. Only strong colonies could keep up under such conditions. The old bees died off rapidly, and no brood-rearing could be carried on to replace them with young bees.

• • •

ENOUGH TO MAKE ONE MAD; MELTING HONEY AND PLUGGING TIN CANS.

"Be ye angry and sin not" is pretty good advice; for if there is any thing that makes a man act like a fool it is getting angry or getting drunk; but it is not always easy to control one's self. A while ago I was melting up some honey in five-gallon cans, and out of twenty or thirty cans no less than ten had holes in them—mostly nail-holes, I think. We melt in warm water; and if we set a can in that has a hole in the side, when the honey melts it will run out and the water run in, just as a jug of water turned bottom up will let the water out and air in—first one and then the other. It is not conducive to good nature to discover, when you come to empty the honey from your can, that it is half water, as we sometimes do. We try to find the holes before we put them in the water, but do not always succeed. But if we find them, what then? Why, just solder up the holes. Yes; but the moment the hot iron touches the can near the hole it will melt the honey before it melts the solder, and out it comes, making it impossible to make the solder stick. My! but wasn't it provoking! But it occurred to me at last that the holes could be stuffed with light cotton cloth with the point of an awl or dull knife. I tried it, and it was an entire success; and I note it down for the benefit of others.

BEEKEEPING IN THE SOUTHWEST

Louis H. Scholl, New Braunfels, Texas.

Several requests are still on my desk for me to give my methods of swarm control, together with my spring management, with the divisible hives I use; but so far it has been impossible for me to write this up as fully as desired by these enquirers. This I regret very much, as I feel that, since we have been able to keep down swarming to a minimum in such a large number of apiaries, and for so many years, this information may help others to hold the bees in check to some extent at least. This year it happened that we had continued rains and bad roads to such an extent that we could not visit the apiaries for weeks, and some of them we could not reach at all during the entire spring months. The spring was exceptionally favorable for swarming; and as a consequence of our inability to make the necessary manipulations we lost many swarms. In a few yards nearer home, and in those near good roads, that could be reached at the proper time, the bees did not give us any trouble.

I am taking this opportunity to explain why this question has not already received my attention.

* * *

"COMB-HONEY SANDWICHES."

Little slabs of comb honey wrapped in clean paraffine paper with a nice colored band of paper around all, to hold it together, as the sandwiches are put up that are handed us at the railroad-station restaurant now, ought to prove a splendid way of disposing of a large lot of comb honey. It would be cheaper to produce the comb honey in shallow frames, cut it out into suitable pieces, wrap it, and hand it over to a customer. This is intended for the retail trade, of course. For shipping to market these "honey sandwiches" need only to be placed in cardboard cartons, with so many to a case, and the cases crated together for shipment. Pound packages of comb honey of this kind can be produced much cheaper than pound sections; and although they may not take the place of sections where section honey is especially demanded, yet I do feel that they would find a good demand with those people who care more for the honey they get for their money than for the appearance they pay for in the section honey.

* * *

A VALUABLE ARGUMENT.

Some time ago I outlined an experiment which could be easily made to determine

which would be the cheaper to use, syrup or honey. The test is made by placing on the table two equal-sized tumblers and filling one with honey, the other with syrup. Enough of either is to be spread on the bread with which it is eaten, to "give one a good taste of either the syrup or the honey." Close observation will reveal the fact that it takes a good deal more of the cheaper-priced syrups to "give one a good taste" than if honey is used. It will be found that the use of honey at a higher price than the cheap syrups will go further, and, consequently, be the cheaper in the end. And not to be forgotten is the fact that the honey is by far the more healthful. Its constant use will not give any evil effects like the many glucose and other corn syrups on the market. We have recently used a small pail of the lightest-colored syrup now on the market; and while it "tasted" quite good for a few meals, for a change, we do not care for it any more. We simply tired of it from the effect that the glucose and corn syrups have on our systems.

* * *

OUR FLOOD LOSSES AND THE PROSPECTS.

A large number of our friends have sent me encouraging letters since we experienced the heavy flood losses in the Brazos River Valley last December. These letters are certainly appreciated. We feel more encouraged to go on with that which we still have, and we feel the loss much less.

The weather the past winter and this spring has been one continuous time of excessive rainfalls. Since October of last year there has been in this neighborhood 29.74 inches of rainfall, and it has rained heavily all day today. This is a very exceptional occurrence for this part of the State. Other parts of Texas have fared still worse, while a few localities did not suffer from an excessively wet season. Indications are that there will be still more rain for some time, and we can not tell when the end will be.

Roads are almost impassable, and work in the outapiaries will be impossible for some time. Our work is being delayed considerably. But the prospects for a good honey crop in this part of the State are excellent so far, although it may prove to be too wet a season for best results. We can never tell, until we have made our crop, what it will be, as some seasons are too dry and others too wet,

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.

March and April have paid in full all of the days borrowed from May. The closing days of the month were of a variety that would have fitted the season better in the early spring. Fog, fog, fog, has been the complaint of the beekeeper, and justly so, for it has done no less than cut in halves the crop of sage honey.

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"BEARING" THE MARKET INSTEAD OF "BULLING" IT.

The editor of the *Western Honey Bee*, in the May issue, throws a bomb-shell into the honey market that will not soon be forgotten by the beekeepers of the State. It is hard to imagine any thing that could have been done that would have depressed the honey market to the extent that the article spoken of above has done. The beekeeper is always more or less prone to be nervous over the markets, and such reports almost scare them to death. I have heard year after year just such reports, but, as a rule, from representative honey-buyers; but this, coming from the pen of the very man above all others who should bull the market to the best of his ability, has caused profound indignation among beekeepers of this section. The editor of the *Western Honey Bee* is a personal friend of the writer, and his knowledge of the bee business is fully recognized; but it is my opinion that he has made a mammoth mistake in giving such a pessimistic report of the market, especially when every condition locally was in favor of a steady market, at least, rather than against it, so far as the outlook for sage or other white honey is concerned. The eastern output at that date had not yet begun, and there was a chance rather for a shorter crop than last year if we follow the trend of events in the past. The few carloads of honey in and around Los Angeles is not going to injure the market to any great extent if there is an outlet elsewhere.

The writer has followed the bee business 18 years in the East, and is in position to say that it is indeed very seldom that one honey crop follows another the next season in the same locality. If I may venture a prediction, the East will not have as large a crop this season as last. One of the unpardonable things said in the above article is the following quotations: "And let us welcome a period of low prices for honey as wonderfully stimulating to its consumption;" again quoting, "When two or three

sections of good comb honey can be bought by the working man for a quarter, and when the tin pail can be filled at the grocery with a gallon of good extracted honey for 50 or 60 cents, then we can do business; there will be a demand that all the beekeepers of the coast will be unable to supply." The last of these quotations is absolutely true, for the reason that, with honey at the price named, there would be few beekeepers to supply any demand that such conditions might bring about. Honey in its purity is a luxury, has always been so, and always will be, from the fact that the bee business is uncertain at the best, so much depending on the vagaries of nature, the loss by disease, and at the present time the expense of equipping for the business. A man can not afford to pay the present prices for hives and equipment, nor even for bees, and sell honey at such prices. It would be the ruin of the industry from hive-factory down.

I see no reason why the beekeepers of Southern California should sacrifice the first crop of sage honey obtained for three years when, on the very face of the facts, the crop cannot be a large one. Raising honey to feed the poor is folly.

[There is a chance here for an honest difference of opinion as to the best policy to pursue. Perhaps it would have been better to have kept quiet; on the other hand, if conditions are as the editor of the *Western Honey Bee* reports (and there are some grounds for his fears) it would be folly to put prices too high, for the result later on would be a fearful slump, smashing the market into smithereens.

We agree with Mr. Chadwick that it is seldom that one good year is followed by another good one. We do not believe that we shall have as heavy a crop of clover in the East as we had last year. If clover falls down even a little it will boost prices in the West, without question. Undoubtedly our policy at the present time should be optimistic until we can learn what the East is going to do as well as some parts of the West. A few carloads, either of comb or extracted, here and there, left over from last season, should not depress prices too much. For the present, at least, it is wise for us to "look and listen." Prospects for a clover crop are good. But prospects have been just as good before, with practically no honey later.—Ed.]

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.

SURPLUS INCREASED TENFOLD, ETC.

I suppose I have been keeping bees in a crude form, or in the old-fashioned way, for I have allowed my bees to swarm naturally, hiving all prime swarms, one in each empty hive, and doubling up after-swarms till a fair colony was made. In this way I have secured an average of fifty pounds from each old colony in the spring, and supposed I was doing fairly well until a few weeks ago an old man who had been making a specialty of beekeeping for thirty years told me that the surplus from any apiary could be increased tenfold by allowing only one swarm from each colony. Now is that right?

Without doubt the statement is exaggerated. It would seem that you can safely count on fifty pounds of comb honey in a good year from each good colony, and allow them to swarm just as they please. With one hundred good colonies, that would amount to 5000 pounds. Now by allowing only one swarm from each—which any active man could easily manage—if that amount could be increased tenfold, or to the amount of 50,000 pounds, the crop would be worth, at ten cents a pound, \$5000. Perhaps this is something in which location “makes all the difference in the world;” and if so it would seem that the most of us must claim a location much inferior to that in which this specialist beekeeper lives.

However, there is *something* in what you were told regarding restricting your swarms to only one from each old colony in the spring, where natural swarming is allowed. In my early years I allowed the bees to swarm as they desired; but I soon found out that, if any after-swarm left the parent colony, all prospect of any surplus honey from the parent colony went at the same time, the prime swarm giving all the surplus, as the after-swarm would do no more than to build up for winter, as in the case of the old colony. But by limiting the old colony to just one prime swarm, the old colony, if rightly managed, gives fully as good a yield in surplus as the prime swarm. In this way the colonies may be doubled each year, and the surplus doubled as well.

With the bad wintering which came to the bees along in the eighties, this doubling during the summer was quite a comfort to the one who found his losses each winter to average fifty per cent of what he had in the fall; while an average of 100 pounds of comb honey for all of those ten years of the eighties gave a zest to the beekeeper's life not found in the fifty-pound yield. But the days of swarms to be hived in separate hives have seemingly passed by with the most of our practical apiarists. By taking this swarming matter in our own hands, swarms

can be made at pleasure, or swarming be done away with, and a yield above what could be done by natural swarming brought about. By retarding the desire of the bees for natural swarming through putting on a hive of combs until the yield is about to come on from the flowers which give us our surplus crop, and then placing this upper hive of combs, now partly filled with honey, by way of exchange for the lower hive of brood, and then shaking all the bees from their brood and the hive containing it, so that they run in to what was a few minutes ago their surplus apartment, great results can be obtained in the sections, even in a poor season. At time of shaking, supers of sections are put on, and thus the sections become the storage room, while the honeycombs the bees were eagerly storing in a few hours ago are being emptied to give place for the eggs the queen will be depositing in the cells as fast as the honey from them is carried above. And that which is coming in from the fields, mingled with that which the bees are carrying up from below, causes the sections to be filled as by magic, and all swarming is done away with.

WHY BEES DO NOT LOSE THEIR STINGS WHEN STINGING OTHER BEES.

Another correspondent wishes me to tell why bees when stinging other bees do not lose or leave their sting, the same as they do when stinging the beekeeper. From what I myself have seen, a slight prick is all that seems necessary to kill a worker-bee, the sting not entering far enough so that any of the barbs on the sting enter the wound. This does not seem to hold good in the case of the queen; for on several occasions where I have had queens stung in the thorax, where the wings, legs, abdomen, or head is attached, the sting was universally left. On the other hand, most of those who have kept bees for any length of time have noticed how quickly a colony into whose hive a small runaway swarm has come will dispatch that swarm without leaving a sting in a single bee. An old beekeeper once told me that a bee had to strike a person, as does a hornet, in order to sting, otherwise she would not sting at all. This hardly holds true; but she needs the impetus motion gives her, or something to hold her to the work, so to speak. Certainly a “laying hold” is necessary for the bees to drive the sting into any thing so that it will penetrate beyond the barbs that are on it; and when penetrating to such a depth, the sting must be left.

GENERAL CORRESPONDENCE

GOOD COMBS; THEIR VALUE, AND HOW TO PRODUCE THEM

Nailing and Wiring Frames; Second Paper

BY ARTHUR C. MILLER

In a previous article I tried to show the loss in using poor combs, and how some seemingly good combs are not as good as they appeared. In this paper I will give the fundamental steps for securing combs of the highest quality in the most economical way. The methods I shall describe are those I use; and I describe them because with them I get the desired results. There may be better or more rapid ways, and other persons might use my methods more rapidly than I do. They are not new unless, perhaps, in some minor things, nor are they of my own invention save in two or three parts; but the union of them all is mine.

Before I describe the methods, I want to lay emphasis on the fact that good results are due to the attention to every detail, to having every thing right, and doing every thing as thoroughly as possible.

First, buying the frames. Get only good accurately made frames—those that are made of good lumber, and cut with sharp saws. I say, “cut with sharp saws,” because some manufacturers are not particular, and send out frame stock with feathers enough on it to clothe a big flock of poultry. And those fuzzy edges hinder and prevent good work. At present prices every frame should

be like fine cabinet work; and if they are not, then try some other maker.

When good frame stock is secured, the frames must be nailed up *square*, and with nails which will hold them so. For accurate and rapid work a “jig” is indispensable. Beekeepers usually say “forms;” but by either term it is a device for holding the parts of the frame firmly in proper position while being nailed. There are all sorts of devices, but I prefer the simple one shown in Fig. 1, with an unnailed frame in place. It is a plain, thoroughly seasoned straight-grained white-pine board, with four cleats on the front, as shown, and two across the

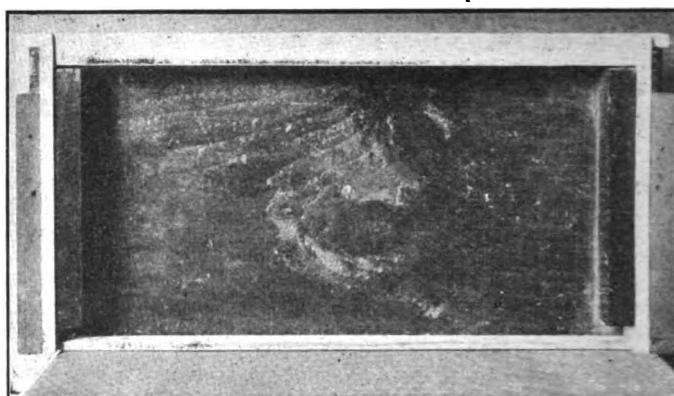


Fig. 1.—A. C. Miller's frame-nailing jig.

back—the latter to keep it stable when on edge, leaving the hands free for hammer and nails. No buttons or springs are needed if it is *accurately* made and the frames accurately cut.

In nailing I put two nails through the top-bar into each end-bar, and one through the end-bars into each end of the top-bar. This is the opposite of the manufacturers' instructions; but please remember I am telling the way I work. My way is more rapid; and, from experience with both ways, I like it better. I don't have frames break like the one shown at Fig. 2, which was nailed the manufacturer's way.

Rapid nailing of frames demands system. The different pieces should be stacked in piles, each kind by itself, and all pieces of

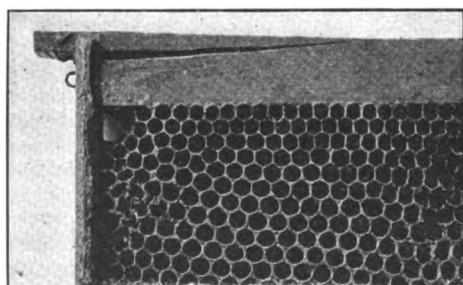


Fig. 2.—Broken frame that was nailed through the end-bar to the top-bar.

each sort the same way, and all piles always in the same place on the bench. The nails should always be in one place, and the hammer should be of the right weight to drive the nails with the least number of strokes, and at the same time not so heavy as to bend them. When every thing is so arranged, work is rapid, the procedure being as follows: The two end-bars are put into the jig, and then the top-bar and the four top-nails driven; then the one nail in each end. The bottom-bar is next inserted, and *two* nails driven in one end only, the other end being left unnailed. Some persons use only one nail in each end of bottom-bars; but I believe it poor economy. The frame is then removed from the jig, and the frames are piled in a convenient place for the next operation, which is putting in the staples. I nail until I am tired or the pile gets inconveniently high, and then change off to stapling.

Preferably (because more rapid) the staples should be put into the end-bars before the frames are nailed up; but the staples best for the purpose are so long that they project through the end-bars; therefore stapling is done after the frames are nailed. A metal block is used for stapling. It is like the wooden one which the manufacturers supply, except that it is a little longer. Try it and you will soon see why it is better. As fast as stapled, the frames are stacked with the unnailed ends of the bottom-bar,

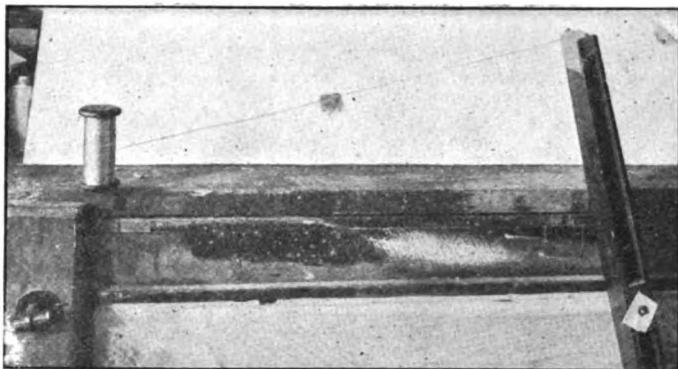


Fig. 3.—Winding the wire on A. C. Miller's wire-stretching reel.

all in the same direction, and ready for the next step, which is wiring.

Wiring is a fine art. If one may judge by the many methods illustrated and described in times past, very few persons know how to do it in a rapid way or with the best results. Unless the wiring is thoroughly and properly done through every stage, speed is impossible, and satisfactory combs will be the exception.

The first step is stretching the wire. Wiring from the spool is an absurdity. The method I use is best shown by the photograph at Fig. 3. The big spool of wire is mounted on a pivot on which it will turn by a slight pull on the wire, but will not spin and cause the wire to kink and snarl, and this pivot is held in the bench vise. The reel, or stretching-board, is shown in detail in Fig. 4. This is pivoted on a bolt through the front of the bench, and is rotated by the right hand while the wire slides through a greased cloth in the left hand. If the spool of wire frictions on its pivot properly the "drag" will be uniform and all the wires will be wound on the stretching-board with

uniform tension. When wire for about fifty frames is wound (count as you wind), the wire is made fast to a tack on the stretching-board, and severed from the spool; but don't let go of the end leading to the spool. Wind the surplus back and make the end fast to a tack in the end of the spool. You will not forget this precaution more than once, I assure you.

A word about the

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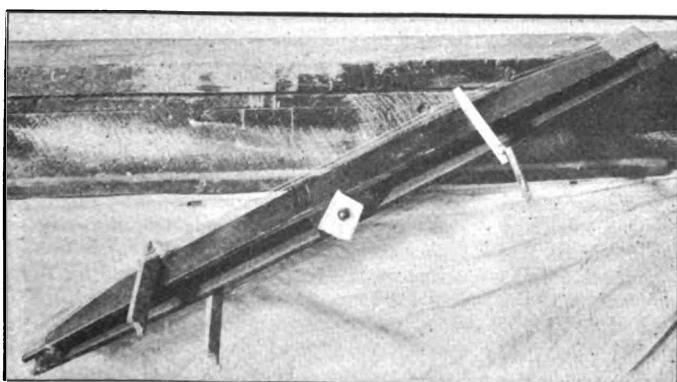


Fig. 4.—Stretching the wire on the reel.

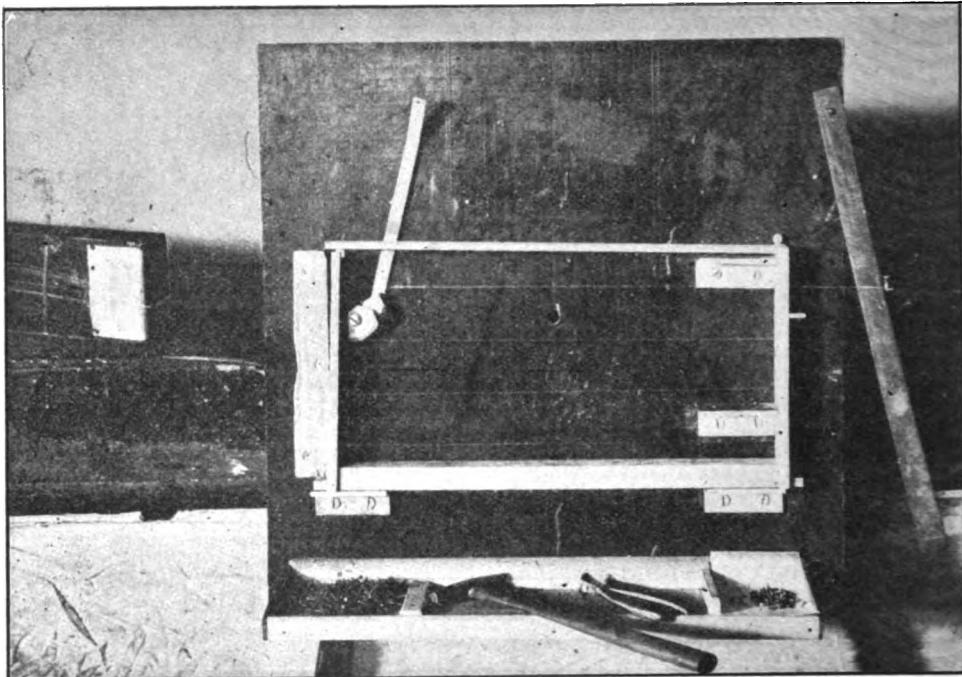


Fig. 5.—A. C. Miller's frame-wiring clamp.

wire, and handling it. Be sure that the wire you buy is new and bright. If it is brown or rough, send it back, for it has begun to rust and will be rotten, and break. Wipe machine oil or vaseline over the wire on the spool when received, then it will keep until you need it. I keep mine wrapped in an oily paper when not in use. In reeling it, the oily cloth keeps the salty moisture of the fingers off, assures a greasy coating to the wire, and also prevents sore fingers. Take pains to avoid kinks at all times. A kinked wire will break, and a broken wire costs heavily in time.

When enough wire is on the reel—fifty or sixty wires are all that stretch rapidly and easily—stretching begins.

A table-knife or putty-knife is slid under the wires on one side, the wires lifted slightly, and a stick pushed under—I use a frame end—and the operation is repeated on the other side. Then the sticks are turned on edge, banjo-bridge fashion, other sticks inserted nearer the ends of the board and turned up, and wider sticks used until the wires are as tight as safe. Try until you find the limit. In a few moments the sticks can be turned down and removed, and the wires will be found to lie nearly straight with little or no tendency to curl when cut. Soft string is wound twice around the board near each end, and also at each side of the

center, where the pivot is, and tied tightly. The wires are cut by slipping the scissors in the recess at one end, as shown in illustration No. 4.

The L-shaped hooks remaining on the wire ends are then all cut off, leaving the wires as straight as needles for threading through frames. The slight amount of wire wasted is too small to consider, particularly when we view the results. I use rubber bands to hold the wire instead of soft string, but either will do.

The stretching-board is made of two half-inch boards, four inches wide, nailed to blocks as shown. The ends are covered with tin to prevent the wires cutting in. Headless nails or conical-headed tacks (see No. 3) are driven in the ends to prevent the wire slipping off while reeling. The board is 43 inches long, and the wires, after cutting and trimming, are 87 inches long—just long enough for easy work. Don't try to save on wire by using shorter pieces. You will lose in time and temper, and get poor results. With the wires straight, and the "spring" and much of the stretch out of them, we are ready to begin threading them into the frames. To do this rapidly, and to make the wires so tight they will "sing," we must have a good jig to hold the frames firmly. Mine is shown in illustration No. 5. It consists of a piece of heavy plank, old,

straight, and free from tendency to warp, supported on legs, and having at its lower edge a shelf for nails, tacks, and tools. The various cleats and angle irons are so located as to furnish support at the right places, and not interfere with threading the wire, and yet hold the frame firmly without any springs or other contrivances. The various parts have been outlined with white to show them more plainly. The board is stained dark for the sake of the eyes, and, incidentally, wires are seen more easily.

The frame is put into the jig with the bottom-bar up, and the unnailed end to the left. The reel of wire is conveniently at hand with the looped end of the wires toward me. A loop is seized, and the wire pulled out.

When the ends are almost free the other hand grasps the wire close to the ends, and both ends are started through the middle pair of holes; for as long as one's head is tipped to one side, it is as easy to start two wires as one.

The ends are then seized with the other hand, *both* wires pulled across, and the process repeated at the other end of the frame.

As the wires are drawn snug, the upper one (that nearest the bottom-bar) is dropped while the other is laced back through the holes next to the top-bar, and then the other wire is treated likewise. As the end of the latter is drawn through the last hole, it is made fast about the two headless nails on the lever at the right by wrapping, as one wraps a rope about a cleat. Then a $2\frac{1}{2}$ -oz. tack is put at the top and bottom opposite the ends of the angle irons, as indicated, and these tacks driven in, because the wires are to be wound firmly about them. The lower end is wound completely about the nearest tack twice—that is, three sweeps of the hands; more is too much; less is not enough; the wire cut, and the tack driven home. I cut the wire before driving the tack, as I do not appreciate sharp points of wire which are left if cut after driving. I use and prefer cutting-pliers rather than scissors, as they are handier, and one is less likely to cut the wire at some other place at the same time.

The wire is now ready for tightening. The lever at the right (which is to save fingers rather than for power) is seized by the right hand and pulled firmly to the right, while the left hand "walks up" the wires in the frame much as shown in the dealers' instructions for tightening wires. The first wire is pressed down, then the second, then the third, while the lever takes care of the fourth and all of the slack. The process is repeated three or four times.

The left-hand end-bar is thereby pulled in at the free end one-half inch, until it rests against the cam, as shown in No. 5. The wire is pulled from the nails on the tightening lever, drawn snug, wound about the upper tack, cut, and the tack driven home. The handle actuating the cam is then moved until the end-bar is out to its place. The cam handle (a springy piece of iron) is caught behind a nail placed for the purpose, and the free end of the bottom-bar is nailed.

All the wires sing when struck, like the strings on a banjo. There is no stretch nor give to them under any load they will get while combs are building, and the frame is absolutely square. They are ready to hold foundation properly.

It has been asserted that the lowest wire will be the tightest; but the difference between it and the others is not appreciable. The description is necessarily long, but the actual work is rapid. Rarely is a wire broken; but when one is, it is cut out and a new one put in. Never try to mend or piece it.

As to time used in the operation, I nail and staple 35 to 45 frames an hour. Wind-ing and stretching the wire for fifty frames takes about five minutes. Wiring from the time a frame is picked up until it is laid on the finished stack is just $1\frac{1}{2}$ minutes, and I regularly do 30 an hour, including stretch-ing wire, moving finished work, and getting a fresh stack at hand.

I have seen no process to equal it in results, and very few to approach it in ease and speed. I am now nearly half through the third thousand fixed by these methods.

Putting foundation into such frames is a swift and easy matter, and will be explained and illustrated in another issue.

Providence, R. I.

ARE BEES ATTRACTED BY THE COLOR OF BLOSSOMS?

BY JAMES A. GREEN

The article on the color sense of the bee, page 106, is extremely interesting to me. The experiments narrated therein seem to prove fully that bees have at least some

perception of color. But I cannot agree with the author when he concludes with the statement, "The old theory that the colors of flowers are designed to attract the in-

sects . . . has been successfully vindicated." Granting that it has been proven that bees can distinguish some colors, it does not by any means follow that it has been proven that the colors of flowers are designed to attract bees or other insects, or, in fact, that they have any attraction for them. I have never been able to reconcile myself to this theory, although it is one that is almost universally accepted by botanists.

It is but a forlorn hope to attack a citadel so strongly garrisoned by the wise ones of the world, but I will at least throw my little pebble. I shall not attempt to make an exhaustive review of the subject, but will point out one or two particulars in which it seems to me the theory does not agree with well-known facts. One of these is that many of the most beautifully colored and elaborately marked blossoms seem to have no attraction for bees, which visit them but little or not at all. The counterpart of this is that the blossoms most visited by bees are usually very inconspicuous in their colorings and markings.

The popular idea on the subject of honey-gathering is well expressed by the poet who wrote of the bee that "gathers honey all the day from every opening flower." Only the practical apiarist knows how comparatively few are the varieties of blossoms that are of much value to the bee. While bees work to a greater or less extent on a great number of flowers, those that are most attractive to them, and from which the world's supply of honey is gathered, do not make a very long list. What are the principal sources of honey supply? In the United States and Canada, white clover, sweet clover, linden, heartsease, buckwheat, sage, alfalfa. All of these, with the exception of alfalfa, are white, tinged with low tones of green, yellow, and red. White clover and heartsease are greenish white, more or less tinted with red. Sweet clover and buckwheat are greenish white. Linden, or basswood, is yellowish white.

The sages and mints in general, such as horesemint, pennyroyal, catnip, etc., are, as a rule, very modest in their coloring. So are willow, orange, raspberry, cotton, man-grove, catclaw, mesquite, locust, and other members of the acacia family. So too are the heather of Europe, the campanilla of Cuba, the logwood of the tropics, and many other plants of greater or less renown as honey-producers. I might go on and extend to great length the list of flowers that are favorites with the bees, yet are neither brilliant in hue nor conspicuous in their markings.

We are told that blue and violet flowers

are preferred by the bees; yet among the blossoms that are good yielders of nectar, and so more attractive to bees, red tones are far more common than blue ones. Alfalfa, the blossoms of which range in color from light blue to deep violet, is the one conspicuous example that comes to my mind of a blue blossom that yields much nectar. But the bees do not visit the deeply colored ones any more than the light ones. Neither do they visit flowers of other tints. The blossoms of an apple-orchard vary from pure white to a deep pink; yet the bees show no preference, and the white blossoms of the Ben Davis are as well fertilized as the pink blossoms of the Winesap. But, according to the experiments of K. V. Frisch, bees cannot distinguish red, so that markings in this color or variations in its tints are not to be considered, even according to the color theory, as influencing the attractiveness of blossoms to bees; and all blossoms so colored or marked are to be considered as of neutral tint, so far as bees are concerned. So alike clover, with its deeper tints of red, is no more attractive to bees than its white cousin, and the still deeper tones of red clover are not in the least attractive to bees until its flower tubes are filled nearly to the brim with nectar.

Can it be possible that the blossoms have been working in different directions in their development? Have some adopted bright colors and varied markings to attract insects while others have followed the more practical plan of rewarding their winged helpers with generous supplies of nectar instead of painted promises?

If so, the latter would seem to have the best of it, so far as the bees are concerned.

Grand Junction, Col.

[Our correspondent is usually very accurate, and it is seldom that we can pick a flaw in his logic or his facts; but on this proposition, at least, we believe his facts *support* rather than disprove the old theory that colors are designed to attract insects rather than otherwise.

Our correspondent makes the point that blossoms most visited by bees are *usually* very inconspicuous in color and markings. In this he is absolutely right. If that is true, does it not contradict the color theory? Not at all. Flowers have two ways—yes, and we might add a third—of attracting bees and insects so as to bring about cross-pollination. First and foremost is nectar; next, color; third, pollen. Sometimes the flowers employ all three methods. Where cross-pollination is very important we sometimes find the complete combination. The blossoms that yield the largest amount of

nectar are very often inconspicuous in their colors and markings. The more abundant the nectar, the less color; but in a few cases, at least, nature seems to furnish a double attraction—color as well as nectar. Alfalfa, a few varieties of apple-trees, orange trees, red and crimson clover, are conspicuous examples of these. A list of blossoms that attract bees only by nectar might include such plants as the sages of California, basswood, raspberry, and the palmetto; but most nectar-yielding blossoms that yield honey in commercial quantities have a little color. Conspicuous among these are white and alsike clover; and right in this connection our correspondent refers to the white-colored blossoms of the Ben Davis and the pink blossoms of the Winesap apple-trees. He goes on to say that the one is as well pollinated as the other, notwithstanding one has more color than the other. But, mark you this fact: The Ben Davis is largely a self-pollinating tree, while the Winesap is almost wholly dependent on the agency of insects, particularly bees. It has been positively demonstrated that the Winesap can not be produced without bees. Does this not show that color is, after all, a factor? When a tree or plant is self-sterile to its own pollen it must put out, in addition to nectar to attract insects, color; hence we shall probably find self-sterile trees and plants furnishing nectar having more color than the self-pollinating kinds.

Flowers that are large and showy in color and markings usually have little or no nectar. What's the "show" for, then? To get the bees to visit and cross-pollinate them. A preponderance of color or nectar is for a purpose—to mingle the pollen. Again, plants that are wholly pollinated by the wind, and hence do not require the help of insects, are totally without color except the color of the plant. An example of this is the grasses.

Darwin has shown how nature constantly adapts itself to conditions. As he has pointed out, there seems to have been a constant progress in development all down the ages. In the line of this wonderful adaptation we find papilionaceous flowers, like peas, beans, and locusts, furnishing convenient doorsteps on which the bees may alight to get the nectar which the plants offer. We also find that most of the blossoms are adapted to the size, capacity, and tongue-reach of certain classes of insects, notably the bees.

In this connection, red clover with its long corolla tubes might seem to be an exception; but it is a very marked example of how nature furnishes color to attract bees. The corolla tubes are so deep that the common honey-bees and even the humble-bees cannot reach the bottom of them. When there comes a drouth, nature temporarily shortens these corolla tubes; but all the time, she puts out the brilliant color and the sweet aroma from the nectar, which the bee may or may not be able to get. We have seen the honey-bees time and again go over the red-clover blossoms trying to reach the nectar, and yet apparently fail. But some blossoms will furnish them nectar, and it is worth while for them to go over *all* the blossoms. We venture to say that, if the red clover had shorter corolla tubes, there would be less color, and hence less need of putting out a showy blossom to attract bees. We find corroboration of this in white and alsike clover. They have very short corolla tubes, and a great deal less showy color. White clover is the most important honey-plant, and it is much less conspicuous in color than the alsike.

If our correspondent will go into this matter very carefully he will find that nature has "method in her madness;" and the more we study this, the more we shall see the evidence of this "method."—ED.]

PREVENTION OF ABSCONDING DURING TREATMENT FOR FOUL BROOD; ALSO BLOCKING UP TO PREVENT SWARMING

BY WM. W. CASE

I notice what A. F. Wagner says on page 137, Feb. 15; also what the editor says on page 123, same issue, concerning bees absconding during treatment for foul brood.

I think you will both find that the cause of absconding is demoralization *and fear of starvation*. I don't think you will have any trouble in keeping treated colonies on full sheets of foundation (at least, I don't), if the treatment is done, as it always should be, just at night, on account of robbing, and

hived on half a dozen sheets of foundation placed in one side of a ten-frame hive and a common baking-tin about $1\frac{1}{2}$ inches deep, 3 to 4 wide, and a foot or more long, placed in the other side. Sprinkle cut straw half an inch deep in the bottom, and put every drop of a rich sugar syrup in the pan that the colony can take up. If very sultry next morning, shade the entrance and place $\frac{3}{4}$ -inch blocks under each corner of the hive.

If field stores are not coming in plenti-



A part of the apiary of E. A. Duax, Chippewa Falls, Wisconsin, roof of bee-cellars in the background. The yard is sheltered on the west and north by a cedar hedge.

fully, in 48 hours very quietly (so as not to break the wax curtain) refill the pan with $\frac{3}{4}$ the former quantity of syrup, and I think you will say farewell to absconders. A division-board reaching within an inch of the bottom may be placed between the feed-pan and the foundation, but it is not necessary, and I do not always do so. Any kind of feeder may be used in place of the pan if it may be refilled without breaking the cluster.

Absconding swarms are hardly likely to carry the disease, as they usually abscond because they are *not* gorged with honey; but in diseased sections of the country all swarms not known to be absolutely healthy should be hived on full sheets of foundation, and left the four full days before being disturbed. (See five principles of treatment, June 15, 1913, page 406.) One frequent cause of absconding is that shaking out has been done so rapidly that the bees do not have time to fill their honey-sacs. Considerable has been said concerning blocking up hives to prevent swarming. Will it work? Yes, sometimes; and when the subject of swarming is fully understood, perhaps it possibly can be made to work at all times.

In 1913 our clover flow was light in central New Jersey, not many colonies fill-

ing more than one super, and many not that much, down to nothing. In clover, 70 odd colonies cast two prime swarms. The first week in August started with a good buckwheat flow, and the second week the same, accompanied by that warm, sticky, sultry condition so well known as setting bees swarming crazy, and things began to develop rapidly. On August 14 one swarm issued, and two on the 15th, with the whole apiary getting ready.

Fifty were immediately placed on inch blocks, and not another swarm issued. Several apiaries within a few miles swarmed one hundred per cent, or more. Mine swarmed less than seven. I have practiced blocking up more or less for several years, always to my advantage. I do not pretend to say that, with out present knowledge, this can always be accomplished, especially during June, with its bright, glad, flourishing days, when nearly every thing, including bees, takes life at its fullest, and when the only fly in the ointment of content is also the sultry, sticky June nights when no real live person can sleep with the windows down, and perhaps we may then begin to realize what full ventilation may mean to an overcrowded colony of bees at the height of the normal season of increase, so strong-

ly developed in all nature, and confined heretofore in an airtight box, and tortured all day by a nearly tropical sun.

I believe that, with just a little more knowledge on the subject, comb-honey production will soon be less handicapped by

swarming than is even now the case with apiaries run solely for extracted honey, and often wonder if there would be room on this great earth for just one more new and perfect hive.

Frenchtown, N. J.

A WELL-LOCATED APIARY, BEE CELLAR, AND HONEY-HOUSE

BY E. A. DUAX

[The following article should have appeared in our May 1st issue, but was left out by an oversight. The first picture mentioned is that shown on the cover, May 1.—ED.]

We have a two-story honey-house, 14 x 28 feet, located very near our apiary. The rear door leading to the beeyard is at my left in the picture (cover picture May 1). From the beeyard it is down hill, which makes it easy to run in heavy supers filled with honey to be extracted. The second story is used for a store room, where five tons of honey were stored last fall.

It has a rubberoid covered roof, which makes it an ideal place to store honey. We raise the honey to the upper story with a home-made elevator run by a gasoline-engine which also runs the extractor. We can elevate between 700 and 800 lbs. to a load. Bee-yard is sheltered on the north by a cedar hedge.

The building at the extreme left, of which you can just see the roof, is the one shown at the left in Fig. 1. The roof shown in the rear is the bee-cellar. It is built on a side hill facing the south. It is very handy for putting bees in and taking them out, for there are only two steps to come out or go in. Two men with a stretcher can handle 75 colonies in about two hours easily.

This cellar is not used for any thing but

wintering the bees. The cellar ceiling has ten-inch joists lined on the under side with paper and matched lumber, then about 6 inches of sawdust; or four-inch dead-air-space floor of matched lumber, and about 7 inches of sawdust on top of it, which makes it frost-proof. It has a 10 x 10-inch ventilator reaching within ten inches of the bot-



E. A. Duax and family in front of their home which the bees helped to build.

tom of the cellar. I have also an intake ventilator 60 ft. long, leading to my bee-cellars, 6 ft. deep inground, which works finely, keeping temperature about 42 degrees Fahr.

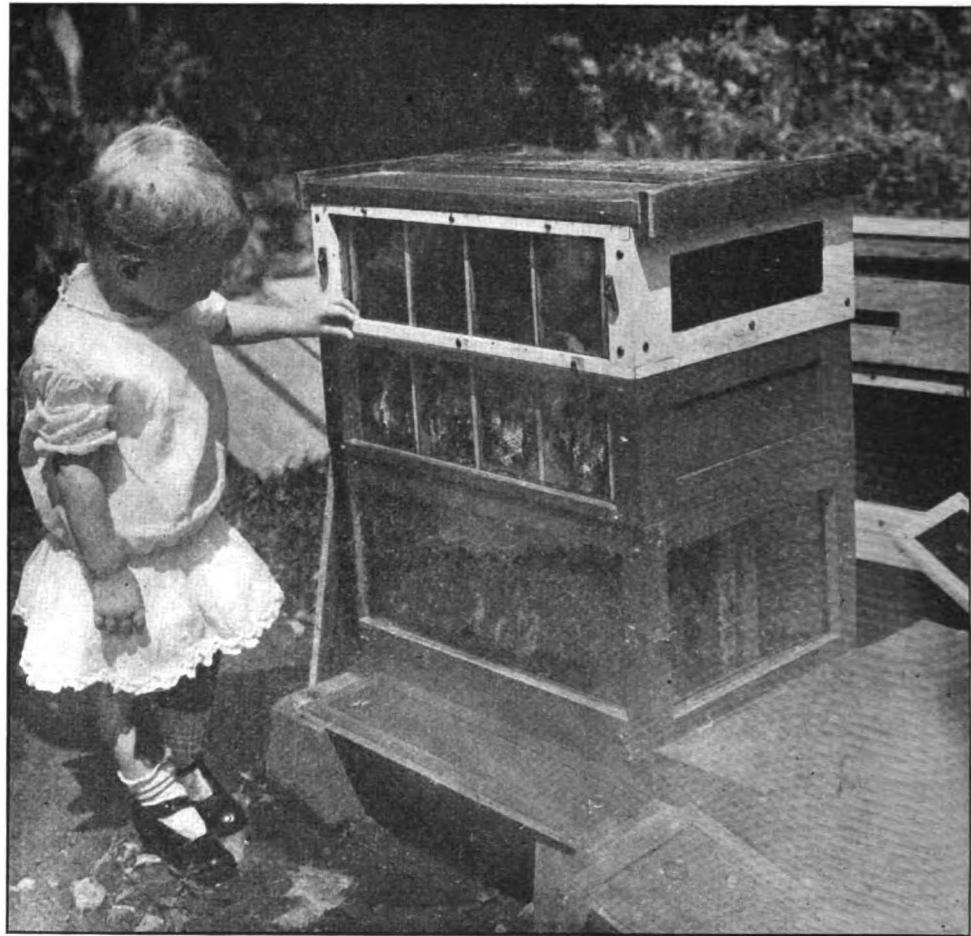
Chippewa Falls, Wis.

BANKING AND BEEKEEPING

BY J. J. MOYERS

I am sending two pictures together with a newspaper clipping which appeared in the Nashville *Tennessean and American* a few months ago. I thought that perhaps you would like to use these in the news columns of GLEANINGS.

My occupation is banking, which duties I perform above all. In place of being an athletic fiend I am a bee fiend, from which I obtain profit as well as pleasure. I have 85 colonies, all in ten-frame hives, two and three story, also two apiaries which are



J. J. Moyer's Observer observing bees in an observatory hive. Mr. Moyer and his family are shown in the cover picture for this issue.

located within the city limits, and then come my two observation hives, one of which is kept the year round in my dining-room window, and which is my daily study. In these two hives I have the golden Italians.

I am trying to get the people to take more interest in bees in this section as there is not a better location in the State.

Fayetteville, Tenn.

[It is doubtful whether there is a class of professional or business men not represented by some enthusiastic beekeeper. Our correspondent is certainly an enthusiast, and we feel sure that he finds his work in the bank less tiresome because of his hobby.

Our cover picture for this issue gives a very good picture of Mr. Moyer, his family, and his bees.—ED.]

NOTES FROM GERMANY

BY J. A. HEBERLE, B. S.

The article by H. H. Root in the November 15th issue, page 799, on putting foundation in brood-frames, is very interesting. The illustrations are so clear that a beekeeper who has had only a few lessons may easily understand it.

I use no grooves with wedges to hold the foundation. I solder it on the top-bar with melted wax. If the wax is warm enough it will hold as much weight as the foundation will stand, but will not stick well if it is too cool. It should be just warm enough so

that it will not melt the foundation. A board is used about $\frac{1}{4}$ inch smaller than the inside of the frame, and thick enough to hold the foundation in the middle of the top-bar. On the two long sides of the board is nailed a thin lath a little longer than the frame, and extending about one-half inch over the sides. The foundation is laid on the board and the wired frame upon it, care being taken that the sheet touch the top-bar the entire length. Board and frame are firmly held in the left hand with the top-bar down, and so inclined that the melted wax poured in the upper corner will run down rapidly. It is better not to pour too much wax on one place, as there is danger of the foundation melting at that point. Keep the hot wax constantly pouring out in a thin stream. We have a handy alcohol-lamp with a spoon that can be removed, which is used to melt and pour the wax on the top-bar. When the spoon is removed, the wire-imbedder may be heated on the flame.

After one side of the foundation is fastened, the board is removed and the frame held in the left hand in such a position that, with the right hand, melted wax can be poured on as before. The lamp is allowed to burn, and the flame is regulated to suit. Lamp and spoon are used as one piece. The spoon is removed when wiring foundation, and the imbedder put in its place. The one I use has V-shaped grooves in the teeth so the wheel can't slip so readily. Between the handle and the center of the wheel there is an extra-heavy metal part that helps to keep the teeth at the desired temperature.

UNCAPPING-FORKS.

I do not use an uncapping-knife, but a fork constructed for that purpose. I can uncap as rapidly with it, because I am not used to the knife. No warm water is needed.

A NICE CHRISTMAS GIFT.

Queen Victoria, of Sweden, gave the Crown Prince (heir apparent) a Christmas present of a quadruple hive (four hives built in one), with roof and base, together with the frames and tools necessary. It was made in Baden. She sent a Swedish beekeeper to Baden last summer to learn what is being done there to foster and to advance the interests of beekeepers. Her Majesty, no doubt, has risen in the estimation of all beekeepers.—*Die Biene u. i. Zucht.*

WATER FOR BEES.

German bee-journals mention the necessity of providing water for bees where nature does not supply it near the apiary. A

dish with something in it, such as small strips of wood, excelsior, straw, etc., to prevent the bees from drowning, will suffice. A couple of barrels with arrangement for continual drip (a spigot, cock, or siphon) would be convenient for large apiaries such you have in America. The barrel should stand on a foundation $1\frac{1}{2}$ or 2 feet high. The drip should fall on a slanting board with rills, or be covered with gunny sack, etc. When bees have young brood they need much water. A large force of bees is needed in the apiary to carry water. In early spring the weather often changes suddenly, and many water-carriers cannot return if they have to go a considerable distance. We often have very bad weather for several days in succession. It is not only the loss when bees are more valuable than at any other time, but the extra work saved to the bees would pay for the trouble of providing water in one or more places in the apiary. Warm water at about 70 degrees to 80 degrees Fahrenheit is recommended. A beekeeper can readily make an arrangement for warming it. A kerosene-lamp will supply the heat very cheaply.

OBSERVATION STATIONS.

In many of the provinces observation stations have been established. A hive on scales is weighed once or twice daily during a part of the year. The number of days and hours during which the bees fly, prevailing winds, the amount of rainfall, etc., are noted. These observations are sent monthly to the chief of observers, who tabulates the results and publishes them with comments. Bavaria has 31 such volunteer observers in the various parts of the kingdom. Switzerland has 39 such stations. The chief, Mr. Juestrich, in his annual report in the *Schw. Bzg.*, states that the 39 stations have 52 hives on scales, 44 of these having their frames in an upright position, and eight in the same way that you have yours. The top-bar is longer than the end. The average monthly consumption for colonies shown was—

November, 710 gr., or 1 6-10 lbs.

December, 688 gr., or $1\frac{1}{2}$ lbs.

January, 794 gr., or $1\frac{3}{4}$ lbs.

The average consumption for ten years was—

November, 741 gr.

December, 888 gr.

January, 956 gr.

In Bavaria the average given for 1911 was—

November, 595 gr.

December, 446 gr.

In 1913,

November, 371 gr.

December, 621 gr.

In April the brood was measured in 14 colonies, showing an average of 34 dm., or about 544 square inches per colony.

SMOKERS.

We have a smoker with a clock and a fan that will blow smoke for about ten minutes. It can be made to smoke just a little or stop entirely, depending on the tension of the brake, which can be readily adjusted as wanted. I expect to use one this summer. I have been using a smoke-blower which is held in the mouth, leaving the hands free.

We have a water-pipe also. It is an atomizer, neat in appearance, and held in the mouth. By blowing instead of squeezing a rubber bulb, it makes a fine spray of water. I have not used one, but have read the praises of others. Whether it is because it is cheaply operated only, or because it subdues the bees, I can not say.

A regular brier tobacco-pipe made especially for the use of beekeepers is extensively used. For one that is a tobacco-user it is quite convenient, and will do very well for an hour or two.

Markt Oberdorf, Bavaria, Germany.

SOME DIFFICULTY IN OVERCOMING PREJUDICE IN REGARD TO SWEET CLOVER

BY WILLIAM BEUCUS

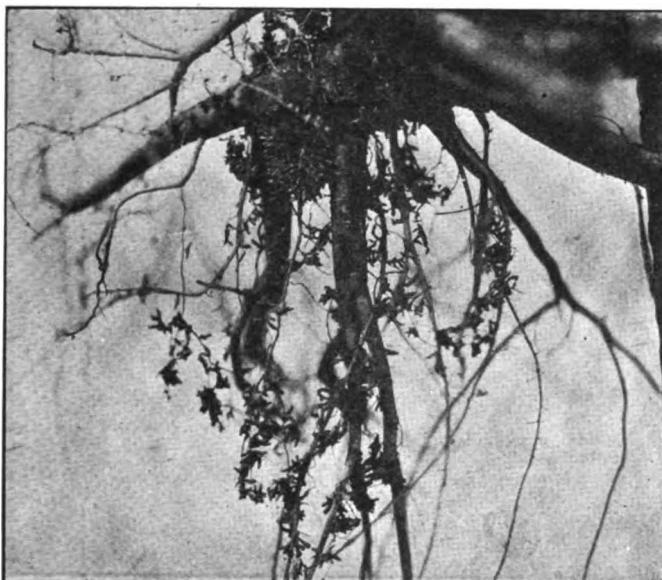
Several years ago I brought from Madison, where sweet clover grows along the roadsides, a quantity of sweet-clover seed. Part of the seed was planted in some soil which I had shipped for inoculation, and the remainder of the seed was scattered about the yard. The plants which grew in the box of soil I transplanted when they were a few inches tall, and these in every case flourished until it was necessary to lengthen my reach with a stick, as shown in the photograph, in order to touch the tips.

In the fall of 1909 a new road was opened to the south of our property; and when it was finished, I scattered upon it some sweet-clover seed. The following year, 1910, was the driest on record for this part of the country. The hay crop was a complete failure, and many farmers sold almost all of their cattle to avoid the expense of keeping them over winter; and yet during all of this time, when timothy and al-

sike and red clover were drying up, the sweet clover I had planted along the road



An exceptionally rank growth of sweet clover on Wm. Beucus' farm, Cadott, Wisconsin.



Roots of sweet clover. Note the "fat" fleshy roots, also the nodules in clusters.

was growing vigorously. In September it had reached a height of four feet, and the stems were as fine as alfalfa, as, indeed, they always are the first year. One naturally would have thought that the farmers would have noticed the contrast, and have given the sweet clover a trial; and yet, even though I called their attention to the matter at the time, and also later, no one was wise enough to experiment with this great legume.

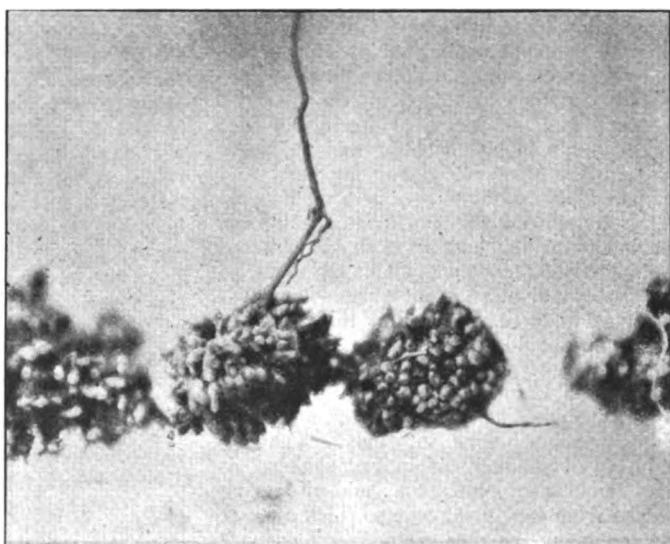
I have called attention to the matter many times since, and have offered seed free to all who would give it a trial. So far not one farmer has shown an inclination to investigate the value of sweet clover for hay, although three have given it a test for pigs, and recommend it highly.

During all this time I had put in the hands of the farmers articles from farm papers, showing up the value of sweet clover; copies of The A. I. Root Co.'s booklet, "The Truth about Sweet Clover," were distributed, re-

turned to me, and redistributed, but without results. The farmers thought, and still think, that that booklet is issued by a firm interested in honey, and, knowing that the sweet clover is a good honey-plant, have concluded that the Root Co. has an ax to grind.

A year or so ago I secured from the United States Department of Agriculture a copy of the bulletin on sweet clover, and let several farmers read it. One farmer who had read "The Truth about Sweet Clover," without being impressed, asked me for seed as soon as he had read the bulletin above

mentioned. He has now tried it for pigs, and recommends it to others. But it is still impossible to find any one who will raise even a small patch of hay. Some say the stems are too coarse, others that the hay can not be properly cured, although they have never tried it. One farmer is inclined to look favorably upon sweet clover for the silo, but on this point I could give no information. Above all, there is still a great



A close view of nitrogen-bearing nodules in clusters on roots of sweet clover.

deal of fear of sweet clover as a noxious weed comparable with quack grass and Canada thistle. In Northrup King & Co.'s catalog for 1914, sweet clover is called "alfalfa's twin sister;" but at the very ending of the praise and recommendation of this plant occur these two significant sentences: "We suggest that you do not let

it go to seed. It can then be controlled at all times." Thus if any good were done by what had preceded, at the very close it was all undone. If sweet clover possesses so many good qualities, why be afraid to let it go to seed?

Cadott, Wis.

PAINTED HIVES NOT BAD FOR GEORGIA BEES

BY L. W. CROVATT

At the risk of being "harpooned" by Dr. C. C. Miller, and being pronounced a common nuisance by the editor, I want to take another shot at this question of painted or unpainted hives.

Dr. Miller, in *Stray Straws*, p. 85, Feb. 1, admits that advocates of unpainted hives "agree that paint is good for the hive, but they think it isn't good for the bees."

Well, now, doctor, let us see. Admitting that I know nothing of climate and general conditions of your locality, I am discussing the question from a southeastern viewpoint. As it happened, I last year had the opportunity to make a study of this same question—the painted and the unpainted hive—in my own yard, and I can say with emphasis that there wasn't the least apparent difference in the relative strength, conduct, or storing ability of the bees in the painted hives and those which were unpainted.

This, then, would seemingly be reassuring to the Southern beekeeper. The insects in the unpainted hive were in no way different from the bees that were housed in hives resplendent with white paint. They most assuredly were not enjoying any advantages derived from an unpainted hive; were no more energetic; did not store any more surplus than the "fellows in the painted houses," and, so far as wintering is concerned, seem to be no better and no worse off than the other colonies in my yard, and we had a severe snowstorm here on Feb. 25—the first since 1899. So far as I could see, the health of the bees in both the painted and unpainted hives was about the same, so the theory advanced is incorrect—here.

But, doctor (and I submit this as a *big* but), you should have seen the condition of those unpainted hives. Here, you know, we have a damp climate, taking it as a general thing. The sun shines hot, and wood exposed soon begins to decay. The unpainted hive-bodies had split; "shakes," as the lumbermen call the odd-appearing breaks from exposure, were so thick all over the outer surface that there wasn't a space of half an inch free and unblemished; and

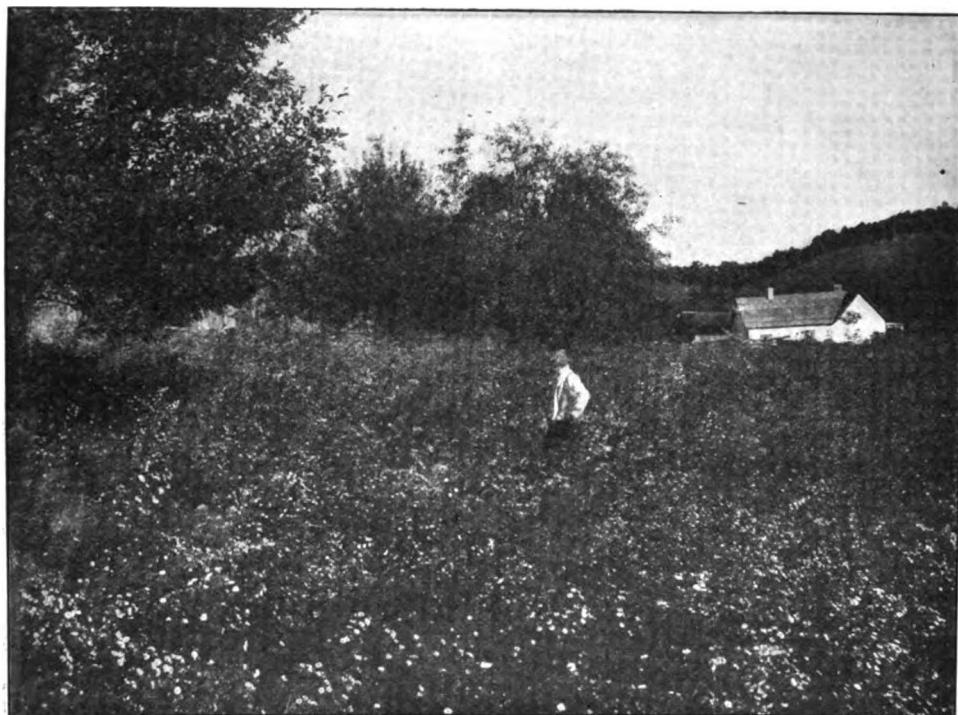
the water, getting into these scarred places, had already begun the work of decay on the hives. They had turned black, and were a sight to see. They had been in use for *one season*. Painted hives to the number of 150 were in the same yard, and showed no great wear and tear after *several years' exposure*.

Now, considering the advance in lumber, which, of course, causes a corresponding increase in hive quotations, don't you think it would be prudent to paint, when by painting we may lengthen the life of the hive? Would it not decrease, or at least keep down, operating costs for the apiarist? Would it not be, let us say, "good business judgment" to paint, if by painting we may cut down our supply costs? I confess that I may, perhaps, be mercenary to a certain degree; but this thing of allowing the weather to rot and destroy the hives is something which does not appeal to me, at least; and it is an established fact that practically 99 per cent of the beekeepers in this region *insist upon painting*, and I assure you that they do have rousing colonies.

As a strenuous advocate of paint I also want to go on record as being a champion of the metal roof-cover. This is the cover for this region, for the excelsior, gable, and other devices heretofore given to the public by the A. I. Root Co. have been unable to withstand the climate and checking, soon replaced by gaping breaks; and, incidentally, rotting brood-frame top-bars may all now be avoided by using the metal roof-cover. Assuredly I paint the cover too—from the under side of the telescope to the last fraction of an inch of the metal cover.

The question of paint may be another of those matters covered by the expression "territory or locality," but you would have to talk with a mighty convincing and loud voice to make any one in this section quit painting hives. I honestly believe that paint does not interfere with the inmates of the hive "in this locality," nor is it prudent to be sparing with the paint-pot and brush.

Savannah, Ga.



A field of white aster in Kentucky.

THE WHITE ASTER IN KENTUCKY

BY JAMES S. JOHNSON

In the mountains of Kentucky we have two distinct honey-flows. The white flow begins with fruit-bloom, and lasts until the middle of July and closes with the sour-wood flow. We may then have a dearth, owing to weather conditions. If it is rainy weather bees store no surplus until about September 10, when asters come in bloom, lasting until the last of October.

It should be the object of beekeepers to see that all colonies are kept populous by stimulative feeding, or by leaving enough white honey on the hives to keep up brood-rearing. Last year I looked after my hives to see that all queens were kept busy laying, and tried to have all brood-frames full of sealed or hatching brood by September 1. Every thing worked just as I planned. Every colony was rousing strong in bees and lots of brood and eggs.

The flow began five days later than in the four preceding years, owing to the dry season, which made the plants a few days late. Bees do not store much honey from this plant until the fields get as white as snow. My hive on scales showed the heaviest gain

October 2, 3, 4, 5. The exact gain was 25 lbs. for the four days. The whole gain per hive from Sept. 15 until the last of October was 67 lbs., taking the hive on scales for a unit. The 48 colonies in my yard stored 3000 lbs. of the golden goods. I harvested about 1500 lbs. of surplus.

Some brood-frames which I weighed averaged 5 lbs. each, making 40 lbs. to the brood-chamber of 8 frames. This shows that all colonies stored about the same amount.

There were about 95 acres of white aster within reach of my bees.

Picture No. 1 was taken in my apple-orchard, showing the plants just as the flowers began to open September 17. This land was cultivated in corn in 1911. The majority of the plants came up in the fall of 1912. Last year it bloomed some, and this year it gave a full crop of bloom. This plant follows cultivation. To get a full crop a piece of land should lie at least two years after being plowed. It blooms the heaviest the second year after cultivation.

I tried saving some seed. The plants were



James S. Johnson in his apiary, Langnau, Ky.

cut just as the seed ripened, before it let loose from the plant. The hay was then hauled to the barn to be thrashed out later. An average plant has about 1000 seed-receptacles, with about 40 seeds each, making 40,000 seeds to the average plant. The seeds are attached to a downy substance which carries them in the wind to adjacent lands where they lie in the ground until the following fall when they come up and bloom the next year. Last June, when transplanting some strawberry-plants I found the young aster plants just large enough to tell what they were. They will grow some all through winter, and make good for the next year. This plant grows in out-of-the-way places also, and around fence-corners, stones, and trees, or any place where a plant

can get hold. It may be seen in the bottom lands and up mountain sides as far as cultivation extends.

Picture No. 2 is a view of part of my apiary, taken Oct. 17, showing a brood-frame as the honey was being sealed. This frame came from a nucleus formed with three frames August 1. It stored 40 lbs. of the yellow goods for winter. It has a fine young queen, and her bees are hustlers. This nucleus was made of two frames of brood and one of honey. The frame of honey was placed third from the hive wall. Five frames of full sheets of foundation and about half a gallon of bees and a ripe cell were added. Back of me and to my right is the hive on scales.

Langnau, Ky.

QUEENS, LIKE HENS, SHOULD NOT BE KEPT OVER TWO YEARS

BY A. C. GILBERT

The great loss, especially to beekeepers who keep less than 75 colonies of bees in one apiary by tolerating queens that are three years old and over, I think is greatly underestimated by some. It is no great task to save enough choice queens to requeen

half of the colonies in an apiary each year, and at the present time there are plenty of queen-breeders who can be depended on to furnish superior queens. When the time comes to super the colonies, the rousing big ones will be found to be headed by a young

queen every time. Since practicing introducing young queens in half of the colonies each season, we have very few but are ready for the supers when clover begins to yield. When we let them all have their own way a good many colonies amount to next to nothing for surplus, which is certainly a great loss. Suppose the apiarist had purchased queens at one dollar each for such colonies the year previous, the differences in yield might have been 100 lbs. per colony. The above has been verified in our apiary.

The first Italian queen that we introduced in our apiary of black bees was purchased of A. I. Root, I think, 32 years ago; and how anxiously I watched for the first young Italian bees to fly! What a contrast they

presented to the blacks! The bees from that queen filled a super of choice honey from the second crop of clovers, besides a great plenty to winter on. I think queens might be compared to hens as to laying, as a hen after the first year lays fewer eggs each succeeding year. It is just as unprofitable to keep a hen over two years as a queen. Then, again, the condition of the brood-chamber of a prolific queen is such as to keep the queen busy occupying the cells, as the hundreds of young bees are vacating them, which has a tendency to prevent congestion in the brood-chamber, and causing more work in the supers, and more capacity, all of which lessens swarming.

Honeoye Falls, N. Y.

THE CONTROL OF SWARMING AT OUT-APIARIES RUN FOR EXTRACTED HONEY

BY R. F. HOLTERMANN

The article on the above subject by J. L. Byer, page 337, May 1, which has very many excellent points, impels me to say something more upon the same subject. It does not require much of a confession on Mr. Byer's part to admit that he cannot prevent swarming "with all kinds of hives." The hive, its size and construction, has a great deal to do with the swarming impulse. With an eight-frame Langstroth hive it is practically impossible to control swarming unless with much extra manipulation; in fact, the hive has to become a divisible-brood-chamber hive, part of the brood in one story and a part in another, with the consequent necessity of looking up the queen-cells in the upper story, for the risk of hatching queen-cells is too great to allow a man of common sense to take for granted there are none there. Others things being equal, the smaller the hive the greater the danger of swarming.

THE ENTRANCE.

Then the entrance to the hive may influence swarming. In going through the country I have often noticed that the entrances are about 4 inches wide and the usual depth, with the bees clustered there idle. Why? Either because the day is hot, and there is not sufficient ventilation to enable the bees to remain inside, or because there is not sufficient storage room. Such entrances were common thirty years ago, but they are neither common nor proper to-day.

All through the surplus-honey flow my hives have an entrance $1\frac{1}{8}$ inches deep, the full width of the hive. With a hive of this kind, and with ample super room, if Mr.

Byer can teach me how "one soon gets to know from external conditions, by the progress being made in supers, and in various other ways, how to diagnose pretty well without tearing into the center of the broodnest at every visit," I will confess I cannot. I am running about 800 colonies this season; and although I am supposed to be a man who grasps details in business, and is the bane of the employee who does not, yet I confess that, with all those bees, except in isolated cases, individuality in colonies is lost; and from week to week to compare progress in storing is almost entirely lost, unless after the first cells have been broken. I doubt its practicability in any case unless at the last of the probable flow. I give enough room for storage to cover any possibility in the direction of a flow, yet the quantity of empty space in a hive varies too much to make the comparison of remaining space a safe guide.

A well-managed colony with proper entrance and proper surplus room does not show by "lying out" that it is going to swarm, and this is particularly and most emphatically true of Carniolan bees.

Every week we look through every colony for queen-cells; and again and again, in a twelve-frame brood-chamber, after looking through ten out of twelve combs, and taking it for granted that there are no cells in the remainder, we have been mistaken; so my instruction to students is, "examine every comb." And after all that is done we have dozens of times found a queen-cell in the upper story at the bottom of a comb of solid honey—the cell just above the queen-ex-

cluder, clearly indicating that the bees carried an egg up there to occupy a cell. No, in all my journeyings and reading I have found no one to tell me to my satisfaction any way to tell if a colony has the swarming impulse unless the brood-combs are examined carefully. I can tell some colonies, but they are not kept and looked after as mine are.

GIVING ROOM IN TIME.

Then, as Mr. Byer says, the bees must be given surplus room in time; and it must be largely, at least, drawn comb. The critical period is when the colony has a nearly full brood-chamber, and before it enters (or, let me say, *accepts*) the super as a part of the hive; and let me say to the inexperienced, a comb-cell is full, so far as room is concerned, as soon as the queen deposits an egg in it.

SHADE.

Many good beekeepers are opposed to shade for the hive. Let me say unmistakably that, in my estimation, *and in the estimation of the bees*, the statement that the sun shining on a hive in summer brings the bees out earlier in the morning is absurd. It may have that effect early in the season when the leaves are not on the trees; but in summer, after warm nights, this is an absurdity; in fact, I have seen bees at work long before sunrise, and I have heard them

at work from my bedroom window when scarcely daylight. But shade after the leaves come out on the apple-trees distinctly tends to non-swarming. I know one must be careful about accepting apparent results from isolated cases; but after over thirty years of extensive experience with bees I know shade tends to decrease the swarming impulse.

CONCLUSION.

Like Mr. Byer, I know of no absolute way of preventing swarming in the localities in which I have kept bees. There have been seasons where it would not have paid me to go through colonies every week to look for the swarming impulse; but I have to go through them once a week just the same, for I did not know this until afterward. To lose a swarm early in a good honey-flow means the loss of the season's profits from that colony. Then, too, in my estimation a colony requires looking through about once a week to see that matters are progressing right in every way. As long as we do this, foul brood is not likely to get a very serious start in an apiary. A colony will not die out from queenlessness, and other evils can be prevented, provided the examiner is awake and his mind is on what he is doing. In this phase of the work a good rule is not merely to *think* every thing is right, but to *know it is so*.

Brantford, Canada.

AN EXPERIENCE IN WORKING BEES ON SHARES

BY LE BOY LINCOLN.

Early last spring, wishing to make up for a heavy winter loss, I advertised that I would work bees on shares. A beekeeper four miles distant requested me to call. The day was quite cold, so I didn't open any of the hives. In answer to my query if the bees were in movable-frame hives he said that all of them were but five. That satisfied me, so we made an agreement to the effect that, when those five swarmed, and if any of the others should happen to cast a swarm, he was to hive them at the rate of 50 cts. per swarm, and, if possible to notify me in time, he was to do so.

On a nice warm day early in April I thought I would look the bees over to see how they were fixed for stores, etc. I took the cover off the first hive, and, whew! movable frames? Well, they were movable all right, but one had to take the whole hive to move them. The second, third, fourth, and so on all through the apiary were just the same—combs built just as bees delight

in building them — crosswise, lengthwise, and everywise.

I called Mr. B., and he explained that the frames were movable, because he put them in one by one. No, he didn't use foundation. What was the use when the bees could build comb without? His father always kept bees, and never used a bit of foundation. I saw that I had gotten a "pig in a poke," and went home to think it over. On the way I had visions of streams of fifty-cent pieces leaving my pockets for those of Mr. B.

That evening I hit on a plan which I thought would hold back some of those coins and still give me a crop of honey. Early the next morning I again visited the yard and picked out the two strongest colonies and placed them side by side. The two next strongest were placed side by side about six feet from the first two, and so on throughout the apiary. Of course, this shifting caused some confusion among the

bees; but on again visiting them a week later I could see no decrease in the relative strength of the groups.

As soon as possible I raised a bunch of queens in the home yard; and when Mr. B.'s two strongest colonies showed signs of swarming I removed them to the other end of the apiary. On the old stand I placed a ten-frame hive with one frame of brood and nine of foundation, and a caged queen. On top I put two full-depth extracting-supers. In a very short time that hive was as populous as could be desired. The queen was liberated and had three frames of brood when I next looked, five days later. It was a sight for sore eyes to see the way those bees were storing honey in the supers. There were combs in the supers and foundation below. The queen would fill a frame with eggs as soon as the foundation was drawn out, so the bees had to put the honey in the supers. I followed this plan with the rest, and by the middle of June I had 23 good populous swarms working in the supers. By this time the first of the hives thus treated were again so populous that I repeated the operation. As I could make only 60 per cent increase according to the contract, this could be done with only five more. The rest I allowed to swarm, and put them back. Mr. B. did this, and got only eight of my half-dollars. I received a nice crop of honey and had 14 good strong colonies at the end of the season as my share.

When at work among the bees Mr. B. was constantly following me about. He did not try to conceal his surprise at my "ignorance" of certain "well-established facts." For instance, when I started to clip the

queen of one of the newly formed colonies Mr. B. almost had a fit. He said clipping meant the ruin of the colony because the queen would not be permitted to take her "daily cleansing flight."

At another time, shortly after I had returned home from a visit to the yard, he called me up on the telephone and wanted to know if I could come down the next morning, as three swarms were going to issue. I asked which ones, and he replied Nos. 12, 15, and 22. Looking in my record-book I found they were all new colonies. In fact, No. 22 had but five frames of brood. I told him there must be some mistake; but he said he was positive, because he had seen drones flying in front of those hives for the first time, and surely I "knew that within 48 hours from the time the first drone is seen flying from a hive, that hive will swarm." I confessed my "ignorance," and said I would take a chance on their not swarming, and Mr. B., disgusted, hung up the receiver. Is it necessary to state that Mr. B. never saw a copy of GLEANINGS nor any other bee-paper in his life? I am sure the beekeeping brethren will appreciate this very simple method of determining (?) when a colony is going to swarm.

Worcester, N. Y.

[Your plan is all right, except that in some cases it may result in the killing of queens by reason of confusion resulting from the transposing of the colonies. But this will rarely occur when the bees are busy in the fields or are preparing to swarm. Ordinarily we should say the plan would be workable.—ED.]

SHOOTING DOWN SWARMS

BY ALFRED CARLING

Some time ago the editor said that the man who could show how to take a swarm out of a high tree without climbing it deserved a gold medal, or words to that effect. Now, as I have not seen any one claiming the medal I will try to get it.

My yard is located in a narrow canyon with tall live-oaks on the hillsides. Some swarms will fly high, and cluster away out on the swaying branches where climbing would be out of the question. I spread a large canvas on the ground directly under the swarm, and put a bucket of water with a big brush handy. I then take my 44 Winchester and shoot off the limb that supports the cluster. When it comes tumbling down

on the canvas I take the brush and give the bees a good sprinkling with water. Then with a dustpan I shovel part of them into the hive, and the rest will scamper in like a flock of wet sheep. When water is not handy I roll up the canvas and dump them into the hive and put the canvas over like a tent.

On days when the mercury is trying to crawl out at the top of the tube the bees are likely to scatter in the air as the limb breaks off; but they will nearly always settle a little lower down, and then I repeat the operation till they are low enough to be reached by a 30-foot pole. Again, on hot and still days I have had to wait till the

sun set to prevent the bees from scattering. It gets cool here as soon as the sun sinks behind the mountains.

After the swarm has been shot down once, there seems to be no danger of absconding. When the foliage is so thick that the branch to be cut off can not be seen I take the shotgun, loaded with coarse shot, and clear out all the rubbish in the way. A shotgun loaded with coarse shot will, in many cases, bring down the cluster without the use of the rifle. After the brush is cleared out so I can see the limb the cluster hangs on, I send a bullet in the center of the limb, then shoot on each side of the first bullet so the bullets will strike about two inches apart. This will cut very large limbs.

Once in a while a swarm will cluster in a crotch or on the trunk of a tall tree. I then shoot coarse shot a few inches above the cluster. Fragments of bark and the powder smoke will invariably make them move, and I keep on shooting above them until they are on a convenient place for either hiving or cutting the limb with the rifle. I remember one swarm that had settled very high on a live-oak tree. When I commenced to clear off the branches with goose-shot charges the cluster tumbled down to the next limb repeatedly till the whole tree looked like a toboggan slide. If the limb is thick it will take three or four bullets to cut it off; but generally one or two are enough, as the weight of the cluster helps very much in breaking the limb.

My bees are wild ones caught in the hills. They seem to be a mixture of all races.

Only a few are black. They are very savage at times. I have had a handful of them meet me forty rods from the yard and sting furiously. When hiving a swarm of this disposition during a hot day I dump the whole swarm that has been shot down into a big bucket partly filled with water; shake them up a little; dump bees and water in front of the hive on an extra bottom-board, and it seems to take both the fight and the wanderlust out of them.

Paso Robles, Cal.

[The only objection to your plan is that there is only one man in a hundred thousand who is enough of a marksman to cut a limb with a rifle bullet. Some years ago a taxidermist friend of ours desired to get an oriole's nest overhanging a body of water. As we had been out shooting squirrels we volunteered the suggestion that we might cut the twig that held the nest. The first shot brought it down, greatly to the surprise of ourself and the taxidermist. We then tried to cut off other limbs in the same way, but failed every time. We concluded that our first shot was born of inspiration or luck.

Some have reported shooting into swarms with a shotgun, but in most cases but little has been accomplished, and the result has been that a great many bees have been killed. We have been "mad" enough to use a shotgun many a time; for there is nothing in all bee culture that is more annoying than for a fine swarm to settle upon an inaccessible spot 40 or 50 feet above ground, especially when you are busy with other work.—ED.]

DOES BEEKEEPING PAY BETTER THAN FARMING?

BY DR. C. C. MILLER

An Indiana correspondent writes:

"I have the 'bee fever' bad, and would enjoy beekeeping; but as I have a good chance at farming, and as this is not a good country for bees, I am afraid to give up farming. The white clover sometimes fails; but there is always a fall flow. If one man gives his entire time to bees in two yards, from 100 to 150 in each, how much per colony could be expected one year with another?"

The easiest way to answer your question would be to say, "I don't know." It would be the truth too. Yet to so many the same questions are occurring that it may be worth while to talk a little about them. One reason that no clear-cut definite answer can be given is that localities differ so much. It

is possible to find a locality specially adapted for some line of farming, but with little pasturage for bees. In such a place, of course, the average person would choose farming. In a place below the average for farming purposes, yet rich in bee pasturage, the case would be different.

Of still greater importance is the difference in people. There is such a thing as special talents. A man who cannot tell one tune from another is not likely to make a brilliant success as an operatic singer. That almost any one can make a living at farming is proven by the many who do make a living at it. Comparatively few are making a living at beekeeping, from which it would seem not so very unreasonable to conclude that few can do so.

Taking your question, "Does beekeeping alone pay better than farming?" it may be not very wide of the mark to say that while out of an average bunch of a hundred men each one may be able to make a living at farming, some a very poor living, and others a good deal more than a living, yet not more than one out of the lot could make a living at beekeeping alone.

The important question for you to decide is whether you are that one in the hundred. Perhaps the first and greatest qualification for the business is a great and abiding love for it. Your true beekeeper is so enamored of the business that he would rather make a bare living at it than to make a fortune at farming. And that very fact makes it possible that he may make more money as a beekeeper than as a farmer.

So you see the question depends upon what you are yourself. The safe way for you to find out is to feel your way. Don't be in a hurry about burning your bridges behind you, but hold on to farming until you have gradually grown into beekeeping on the side to such an extent that you can feel safe in dropping every thing else without asking advice from any one else about it.

Your question as to what may be expected from two yards, each containing from 100 to 150 colonies each, is again one that can not be answered by definite figures in a few words. In some locations 150 colonies in one apiary would yield no surplus whatever, for the field would yield no more than the bees would need for their own use. Likely enough, in most places more surplus could be obtained from 100 colonies than from 150.

From what you say in a part of your

letter that is not printed, you are evidently impressed by the fact that last year from 72 colonies, spring count, I averaged a little more than 266 sections per colony. But please don't understand that getting 266 sections per colony has become a fixed habit with me. So far as I know, that's the world's record for as many as 72 colonies, and I reached it only once in the past 50 years. (Don't make the mistake, either, of calling it, as some have done, 266 pounds. If we call 12 sections 11 pounds, it will be about 244 pounds.) And it's not very likely I'll reach it again in the next 50 years. I am more likely to have years of dead failure. In some locations you will do well if you average 30 pounds of comb honey per colony, or 45 of extracted. In others you may get twice as much.

But there's something else to be figured in, and it figures big, big. It's the extra amount beekeeping puts into your life, provided there's the stuff in you for a true beekeeper. Compare your life as a true beekeeper with the life of a man who stays cooped up in a city office and accumulates his thousands. Living close to nature in the pure outdoor air, with wholesome exercise, your span of life is likely to be 50 per cent more than his. Then while he is looking forward to the day when he can retire from business and enjoy life—which time he mostly never reaches—you are having your fun right along with your work. So far as I am capable of judging in such a matter, if I were starting over again I wouldn't swap my beekeeper's life for that of John D. Rockefeller amassing his millions.

Marengo, Ill.

SWARMS FROM DISEASED COLONIES NOT RARE

BY E. G. CARR

Deputy to the State Entomologist in Bee Inspection

Deputy Stine of Ohio, page 822, Nov. 15, 1913, mentions the occurrence of swarms from colonies affected with American foul brood, and asks whether this is rare. In New Jersey this frequently occurs, both in the case of American and European foul brood, and it is evidently the only reason bees have not been completely wiped out in some parts of the State.

Both forms of foul brood in this locality affect different colonies in varying degrees, perhaps depending on the vigor of the stock, coupled with the prosperity of the season.

A colony only slightly affected with foul

brood before the swarming season will usually cast a swarm if other conditions are favorable. This swarm, hived after the old plan, in an empty box or keg, uses up its infected honey in comb-building, and is likely to pass that season healthy, only to be infected the next spring by robbing the parent colony which has by this time become so weakened by disease as to become a prey to robbers, and thus the cycle is completed.

THE DANGER IN GIVING THE BEES TOO MUCH CREDIT AS POLLINIZERS.

It would seem that we as beekeepers are in danger of defeating our plans by claim-

ing more for the bees as pollinizers than the facts will warrant—not that bees are not *necessary in some cases*, but it must be admitted that there are cases and seasons when bees are absolutely not needed to insure good crops of fruit; but as it is impossible to foretell the seasons when the wild pollinizers will be scarce, and the weather unfavorable for their flight, it is necessary to keep bees as an *insurance*, and this should be dwelt upon when presenting the subject.

In regard to whether bees or other pollen-carriers are needed to insure a crop of grapes, page 82, if the editor will stop in some greenhouse where grapes are grown under glass, and ask the attendant how he secures fertilization of the blossoms, he will

find that grape pollen floats in the air, as does corn pollen, and no carrier except the air is needed.

New Egypt, N. J.

[It is true, as our correspondent says, that bees are not necessary in the work of pollinating *all* kinds of plants or shrubbery. He is also probably correct in saying that grapevines are very largely if not altogether self-pollinating. But this does not prove that bees will not be of considerable assistance some seasons. On the other hand, evidence is piling up more and more, showing they are a positive necessity in pollinating fruit-trees of all kinds. See what the Repp Brothers have to say on this subject in the May 1st issue.—Ed.]

TWENTY YEARS AMONG GRAPES

BY FRED COLE

I have made many observations in the Lake Keuka grape-belt, where there are hundreds of acres of grapes within the flight of bees from a yard. As to whether bees bite the skins of grapes that have not been previously bitten by birds or some other insect, I would offer as an argument that they do not, the fact that the Concord, which has the tenderest skin of any grape of which I have any knowledge, but which is a large grape, and which the birds do not attempt to eat, are never visited by the bees except when the grapes become cracked in handling during picking, while on the other hand the Delaware, which is a small grape that the birds eat more or less, but which contains a much thicker skin than the Concord, is visited by the bees, and they may be found eating away the skin

where the birds have injured them. I could never find where the bees eat into the skins of even the tenderest-skinned varieties where the birds had not first been.

In regard to the bee as an agent in cross-pollinating the grape, I would say that in working in the vineyards while they are in bloom I have seldom seen a bee on the blossoms—not a dozen times in my life, I think, and I have been in vineyards more or less for twenty years.

There are quite a few bees kept in this section. There is a yard of about 80 colonies one mile and a half or two miles north of me, and I have a yard myself of twenty colonies, surrounded on three sides by vineyards.

Pulteney, N. Y.

ANNUAL MEETING OF THE EASTERN NEW YORK BEEKEEPERS' ASSOCIATION

BY S. DAVENPORT, SEC.

The sixth annual convention of the Eastern New York Beekeepers' Association was held Dec. 16, 1913, at the City Hall, Albany. The president, W. D. Wright, presided. There was a much larger attendance than at the annual meeting in 1912, and deep interest was manifested throughout both sessions.

Following the reading of the minutes of the previous meeting, and the secretary's annual report, the president stated that the treasurer, Mr. A. Kingman, having retired from the beekeeping business, had sent in his resignation. The treasurer's report

showed a handsome balance in the treasury. The president delivered his annual address, covering a review of the season for honey production, the current prices of honey at retail and wholesale, and other topics of interest.

The secretary, having served in that capacity for several years, expressed a desire to be relieved from the office. With the retirement from office of the treasurer and the secretary, the annual election of the board of officers stood as follows:

President, W. D. Wright, Altamont; 1st

Vice-president, S. Davenport, Indian Fields; 2d Vice-president, C. W. Hays, Brookview; Secretary, I. V. Labdell, Troy; Treasurer, I. J. Stringham, New York City.

Erl A. Bates, M. D., chairman of the Joint Horticultural Commission, and National President of the Grand International Council of the United States, was present at the afternoon session, and was introduced by the president. Dr. Bates made a statement of the objects of the Horticultural Commission, of the necessity for it, and of establishing a home-building for horticulturists and beekeepers at the State fair-grounds at Syracuse. He suggested the sending of two delegates to the proposed horticultural meeting in January, to be held at Albany, to consider jointly the proposition.

The president was authorized to appoint the two delegates proposed. By a later motion the president was elected as one of the delegates, and he appointed I. V. Labdell as his associate delegate.

The convention was favored with the attendance of Prof. Allen Latham, of Norwich, Ct., who was introduced by the president, and addressed the meeting on self-ventilating hives and honey-houses. His address was interesting, suggesting many details of observation, which controverted some popular ideas of beekeepers.

Dr. G. G. Atwood, of the State Agricultural Department, was introduced, and gave an address on the improper spraying of fruit-trees in blossom as affecting the interests of beekeepers, and also on the spraying of obnoxious weeds for their eradication. He also referred to and described the State Agricultural Department's display of honey at the Chicago Land Show.

Rev. I. V. Labdell, of Troy, being an-

nounced on the program, addressed the meeting on his subject, "A living and more from bees." It was an exhaustive, interesting, and instructive discourse on the practical working of the subject.

W. D. West, of Middleburgh, State Bee Inspector, discussed his subject, "The wintering of bees," giving very full directions for caring for the bees during the dormant season by different methods.

A vote of thanks was extended to Prof. Allen Latham for his attendance and able address. He was elected an honorary member of the association.

Mr. Labdell made extended remarks on making greater efforts to advertise honey and create a demand for it, and offered some suggestions for that purpose.

But one question appeared in the question-box, in answer to which Chas. Stewart, of Sammonsville, State Bee Inspector, gave directions for protecting bees against the depredations of skunks.

The influence and attendance of this, the sixth annual convention of the association, were very encouraging and satisfactory.

The president reported that the 40 dozen nature-study school tablets, illustrating the honey-bee, and advertising honey, ordered of the New York State Beekeepers' Association, and paid for by him, had been so damaged by water in transit or in storage that they were entirely useless, and had been destroyed. He was authorized to draw on the treasurer for whatever amount he was unable to collect in reclamation for the damage and loss of these goods.

At this meeting the members present paid their annual dues, and much other business pertaining to the working of the association was transacted.

SOME PRACTICAL EXPERIENCES IN CATCHING STRAY SWARMS

BY J. M. KINZIE

If there is any thing that boys like it is climbing trees, and just such fun as comes from getting the swarms the trees furnish. My boys in California have built up an apiary of over 200 hives this way. One of them has bought a 35-horse-power automobile to haul his bees back and forth. He took off the back seat and has a kind of frame that he puts on, and is thus able to haul 20 hives at a time. I would rather have my boys engaged in some such sport than hanging around the saloon.

CATCHING STRAY SWARMS OF BEES.

I have often heard people make the remark, "My! I should like to have a hive of bees if they did not cost so much." In this article I propose to tell how to get one or more stands without much cost. In most localities there are more or less swarms that go away every year. Some of them come from hives of bees; but the most of them come from bees that are in trees in the woods or large apple-trees. The way we do it is as follows:

We make boxes and put two to four frames in them, with starters of brood foundation one or more inches wide. We prefer to have the starters one inch wide, as then there is no danger of their melting down from the heat of the sun, as sometimes happens to hives having full sheets of foundation. We then take these boxes and put them in apple-trees, or trees along the roadsides, having first obtained permission of the owner to do so. We set the boxes on a limb and tie them with strings. The boxes have an entrance like that of a real hive, and we make several half-inch holes in the ends, covering these over with wire cloth. We prefer to set the entrance facing the south or east, and to have old frames that have the scent of bees on them. We start out with a load of these boxes, and keep an account in a book of the place where each

one is set. The boxes are numbered from 1 up. One year we got 30 swarms in this way, and 5 in one tree. I might say that we had over 70 boxes out.

In California last year one of my sons caught 9 swarms in this way, and he found 5 more in a ledge of a rock, a distance of 150 feet inside. Some of these swarms were so far back from the face of the rock that he had to make a knife with a long handle to reach in to cut out the comb. This year they are figuring on getting 200. As the country becomes cleared up, and the trees cut down, it is evident that there are not so many holes in the trees for these stray swarms to take possession of. Out of the dozens of swarms that we have caught in the past eight years, only one has developed foul brood.

Rochester, Mich.

SEPARATORS USED ONLY WHILE SECTIONS ARE BEING FINISHED

BY OTTO A. PARK

In the A B C and X Y Z of Bee Culture I read that separators may be omitted if common beeway sections are used, no wider than the brood-frame— $1\frac{1}{8}$ inches from center to center, with full sheets of foundation fastened to all four sides of the sections. Combs would be built nearly as straight as when separators are used; but beeway sections only $1\frac{1}{8}$ inches thick would not hold a pound of honey; so it was up to me to have some supers built with section-holders to be self-spacing, and to have sections made $1\frac{1}{8}$ inches wide on the long side, and $1\frac{1}{8}$ on the short or narrow side, the same being only $\frac{1}{8}$ cut out of each side. When two sections came together it would leave a beeway, and at the same time have some protection for the comb when shipped. In order to use them I had to put one fence separator in the super first; then the eight section-holders, with four sections in a holder. This super was far ahead of any thing I could find for it had a great many advantages over the old. The bees would enter them at once, and there was no need of any separators until the combs were three-fourths drawn out. Then one of the section-holders was removed from the super, the remaining holders spread apart, and a separator dropped in between each holder, super springs being put in to hold them together.

It will be seen that, by the above plan, the bees have no separators to begin with, and this is why I could get combs built so readily. If baits were used they were put one in each holder. When putting in the

separators the holder that was taken out to make room for the separators was used for bait in the next empty super that was usually put on at that time. If they were not used as baits they were left in the holders; and when there was enough to fill another super it was given to a colony that could use it.

If I didn't use full sheets of foundation, and wanted the bees to build combs full at the bottom of the sections I would turn the holders upside down, before the combs were capped over too near the bottom. Every one knows that sections are filled out much fuller at the top than at the bottom; and this turning the sections bottom side up was just what was needed to fill the sections out full at the bottom.

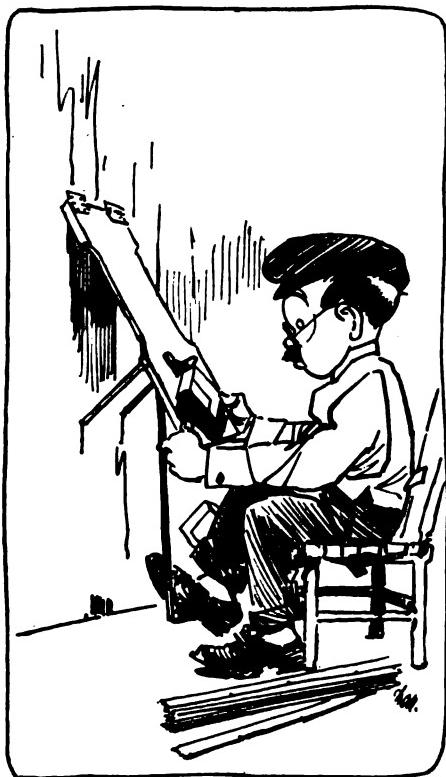
I will admit that I have not tested this plan as much as I should like, the reason being that, at the time I was raising comb honey, I could get only .12 cts. a pound, and could get that for my extracted. Last season I got 15 cts. per lb. Would it pay me to go to raising comb honey again? It brought 16 cts. per lb. last season.

Birmingham, Mich.

[With a difference of only one cent between comb and extracted it would surely pay you to keep on producing extracted honey.

It is just a question in our minds whether the gain in the time the bees entered the separatorless supers would make up for the extra labor involved in going through the yard to put in the separators later on.—Ed.]

Heads of Grain from Different Fields



THE BACKLOT BUZZER

The size of the army, when robbing is going on, and the way the little sisters show a disposition to defend their homes on a rainy day, kind o' makes a fellow feel skeptical about this universal-peace and equal-suffrage problem.

Good Wintering Not the Case Around Lysander, N. Y.

In the issue for April 15, I note that bees, taken the country over, wintered very well. I can't understand this, for it was not so around here. We had about as hard a winter as I ever saw here for bees. At one yard of 50 colonies, well packed in sheds, in the southeast side of a big swamp, where northwest winds get at them, I lost nearly half of them. The rest are weak, with the exception of 12 colonies. Nearly all of those that died appeared to have done so with plenty of honey in the hives. In some cases there was honey all around the cluster. I never lost bees like this before. My man who has charge of this yard when I am in Florida says it was 20 below zero twice, with snow on the ground around the hives and the wind blowing a gale some of the time, so this might account for it.

My bees here at home, outdoors and in the cellar, did not winter quite as well as they usually do. I lost only a few, and those were mostly nuclei in the cellar. Two-thirds of my colonies were out of doors the past winter—the most I ever had out. I think a cellar is the best place for bees in this locality, take

it one winter with another. It rarely goes as low as 20 below zero, and we seldom have one week of zero weather at one time; but we do have severe fierce winds and sudden changes, lots of snow usually, but did not have as much as usual the past winter.

EDW. A. REDDOU

Lysander, N. Y., May 1.

Queens that Lay 6000 Eggs in a Day; the Sagging of Comb Foundation and Securing Perfect Combs

In the A B C and X Y Z of Bee Culture I note that A. C. Miller speaks of queens that will lay 6000 eggs per day. Has any one any such queens for sale? and what do they cost?

For several years I have been much interested in the securing of perfect combs in the brood-nest. I used a lot of the Danzenbaker hives, and tried all the methods recommended by Mr. Danzenbaker; but the bees refuse to obey his instructions.

Now, when I put a sheet of foundation into a wired frame it seems to me that, if I am to get a perfect comb, the sheet should entirely fill the frame, and then it would be attached at all four sides. In regard to the foundation sagging, does it sag more on the wires, or do the wires stretch?

Why is it that the foundation on the market is cut so much smaller than the frames? I think that, if it comes nearer to the bottom-bar, there would be a better chance to get perfect combs.

LEWIS P. FARWELL.

North Charlestown, N. H., April 30.

[About queens laying 6000 eggs a day, we would say that Mr. Miller merely stated the maximum number that a queen could lay in a day. The average queen probably does not lay more than 300 or 400 in a day; and in the height of the season not much over 1000 eggs as a regular day's job; but if she is given an empty comb, cells all cleaned out, she may lay 3000 or even 6000 eggs in a day.

You will not have very much difficulty in getting perfect combs with the Danzenbaker hives. All that is necessary is to reverse the comb when some honey is coming in, and by that means some combs will be filled down to the bottom-bar. It is not practicable to put in sheets of foundation large enough to reach clear down to the bottom-bar unless vertical wiring is used or wooden splints. Some do not succeed with the latter, and the former is not practicable with thick-top frames. When the bees draw out a sheet of foundation it is inclined to stretch downward; therefore it is necessary to have the sheets cut of such a size that they will be about $\frac{1}{4}$ inch, when inserted, less in width than the inside depth of the frame.—ED.]

Not Bee Paralysis but Starvation

I just had my first case of bee paralysis, and, of course, I was a very good doctor and quickly diagnosed the case as paralysis. I was going to try the Poppleton cure, as it was on one of my largest colonies of bees, and I wanted to do something very quickly. They were coming out of the entrance of the hive at about the rate of ten to fifteen per minute, and it seemed that they were increasing. They began to show symptoms about 4 o'clock in the afternoon, and by next morning I had something like one-half to a gallon of bees dead in my hive. I decided to isolate this hive immediately, so I took it up and moved it about a mile from the other apiary and opened it up, and it looked to be about a good-sized swarm of bees on the bottom-board, and, lo and be-

hold! I discovered that there was not a drop of honey in the comb, and practically all the brood had hatched out with the exception of two or three small patches. I gave them some sugar syrup immediately, and they went at it as pigs would swill, and I found that my paralysis was nothing more nor less than starvation. I also realized then that the queen was a very prolific one, and the swarm an unusually large one. She had used up all the stores in the hive in raising young brood, and we had just had three days of very cold rainy weather which brought about the starvation.

Kinston, N. C., April 21.

J. W. BLACK.

What Made the Paint Come off the Hives? What Kind of Paint to Use

I do not want to be understood as being against unpainted hives or painted hives, as I am only a beginner; but last fall I fed my bees on sugar syrup from October 1 until it was too cold to feed them, and they went into winter quarters with their hives running over with bees. In preparing them for winter I used some heavy wrapping paper over the hives and then wrapped around this a single ply of roofing paper after putting on top of my hives a super filled with planer shavings. I made one nice complete job of wrapping over the super and all. When I took off this paper this spring the paint had literally left the wood in patches from the size of a quarter up to the size of a silver dollar. They all looked as if they had been through a fire with the exception that they showed no char on the outside.

I had two colonies of ordinary size in the Danzenbaker hive. These showed no signs of blister, but the others are in very bad order. I am going to transfer these frames to other hives and scrape them and repaint them. Is there any way I could prevent this blistering next fall, and also wrap my hives so that they will be warm?

Kinston, N. C., April 21.

J. W. BLACK.

[It is important to have the hives thoroughly dry before painting. If the lumber is a little green at the time of putting on the priming coat, the paint would easily flake off later; but this was evidently not your trouble, as your Danzenbaker hives, painted presumably with the same paint, did not flake. Your paint did not have enough dryer in it or you put your wrapping on the hives when the paint was too green. Unless the paint were thoroughly dry (and it would not be dry unless some dryer were used) the paper wrapping would take off the paint in patches just as you describe.

We advise a pure white-lead and linseed-oil paint. Some of the ready prepared paints on the market have neither lead nor zinc in them; and instead of linseed oil they have fish oil. Such paint is dear at any price.—ED.]

Five-banded Bees Immune to American Foul Brood

I see Mr. J. E. Crane is after the five-banded Italians. My brother-in-law (John Talbert) had 100 colonies, spring count, 1907, of three-banded Italians. They became diseased with American foul brood that summer, and in the spring of 1908 there were only 52 colonies left. I moved them down on the river near Mr. Nathan Sams, who had 80 or 90 colonies of five-banded Italians. At that time my home yard was on one side of him, and the Talbert bees on the other. Both yards had foul brood, and they were a good grade of three-banded Italians. The farmers were losing their bees on all sides of him. I was talking to Mr. Sams last fall, and he said he had never had a case of American foul brood.

In 1910 I commenced to raise five-banded Italian queens, and every time a colony had to be treated for foul brood I requeened with a five-banded queen, and last fall I went into winter quarters with only

two cases of American foul brood. I like five-banded bees because they brood up early in the spring, and get ready for the honey-flow when the second cutting of alfalfa blooms.

Freewater, Oregon.

C. A. McCARTY

Requeening without Dequeening

The "basic law" for requeening without dequeening, which Mr. A. C. Miller is in search of, Dec. 1, 1913, page 850, will probably be found in Mr. G. M. Doolittle's writings of some twenty years ago. Mr. Doolittle found that, on giving all colonies a queen-cell at the close of the white-honey harvest, about a third were accepted each year. He concluded from this that queens in the small hives he used at that time began to fail at about the third year, and that a queen-cell would be accepted by all colonies headed by a failing queen, even though they had not themselves made preparation to supersede her.

I believe Mr. Doolittle has found that, in the larger hive he now uses, the queen usually begins to fail in about two years. Mr. J. B. Merwin, in the article following Mr. Miller's, brings out the same point where he says, page 852, "This plan will work well on all queens two years old or over," and that is probably the "basic law"—"a queen-cell will be accepted by any colony with a failing queen."

Mr. Merwin may greatly simplify his work by using a ripe or nearly ripe queen-cell. I believe, though, that when you wish to requeen a colony having a vigorous but undesirable queen, the "basic law" will require you to do it in the good old way.

Had I any desire to "jab" Mr. Miller or the editor I would suggest that they procure a small work entitled "Scientific Queen-rearing," by one G. M. Doolittle, in which they may find the plan which the editor says, page 852, is "worth pasting in the hat."

Audubon, Iowa, Dec. 15.

E. M. COLE.

Bees Steal Eggs from Another Hive to Raise Queen

There have been many articles written the last few years, showing that bees sometimes move eggs from one hive to another. I think we had the most positive proof to that effect of any that I have seen. Last summer Mr. Frank C. Pellet, our State bee-inspector, and a friend with him, were at our place. After inquiring about the bees I told him that all seemed well but one colony, and we went to examine it. We commenced on one side, and took out the frames to the center, and found no brood nor eggs in the hive, nor any queen; but we found two queen-cells—one sealed and the other about ready to seal, and that was all the brood there was in the hive—no queen. It seems to me that this could not have occurred unless the bees had transferred eggs from some other hive. In a few weeks I examined it again and found two frames pretty well filled with brood and eggs, and as fine a young yellow queen as I ever saw.

Bedford, Iowa, Feb. 10.

J. H. FITCH.

Are Fumigated Combs Objectionable to Bees?

I have accidentally made a discovery with my bees that leads me to believe that disinfecting old combs with bisulphide of carbon to destroy wax moths makes the combs unfit for use again for brood-combs. I have never seen any thing in GLEANINGS about this chemical doing any harm to the combs; but, as I said above, I am now of the opinion that it does.

Seymour, Ct., Feb. 5. P. J. HOWVEL.

[We have fumigated considerably with carbon bisulphide, and have never noticed any bad effects afterward, although, since our combs thus fumigated are very seldom given the bees again any way, we can not say for sure. If any of our readers have had any opportunity to test this matter, we should be glad to hear from them.—ED.]

A. I. Root

OUR HOMES

Editor

I pray not that thou shouldest take them out of the world, but that thou shouldest keep them from evil.—JOHN 17:15.

As thou, Father, art in me, and I in thee, that they also may be one in us; that the world may believe that thou hast sent me.—JOHN 17:21.

On page 275 a good friend suggests doubling up the country churches, and asks me if I justified the existence of sects; and on the next page another friend tells us how a good live pastor got his church so filled that there was not standing room. He visited *eighty saloons* in the town on Sunday and Sunday night, and found *only six* paying any attention whatever to the Sunday-closing law. Again, on page 285 Dr. Miller discusses having so many denominations. As I was down in Florida I did not see it until it came out in print; and you may be sure I had a big laugh at his expression, "us younger ones." Is it not a pretty good joke from a man "eighty-three years young"? Well, I think I can pretty well agree with my good old friend Dr. Miller. If we could get together and talk it over I assure you we should not be very far apart in our opinions and suggestions. Now, right here comes in a kind word from a good friend about "so many denominations."

Mr. A. I. Root:—On page 275 some one asked you a few very pointed and consistent questions. I have not seen any answer as yet. I should like to say a word or two on this subject, as it is a question that lies very near my heart.

1. Is the church of Christ celestial only, or is it a part of the world?—Matt. 16:18-19. This very clearly locates Christ's church on this earth, and I know of no scripture that changes its name in heaven. Wherever that may be is of little consequence to the member of Christ's church.

2. Divisions certainly are carnal, or else our Savior uttered a very meaningless prayer in John 17 and Paul in I. Corinthians 1:10.

3. Do you justify the existence of sects? This is answered in the quotation given above in our Savior's prayer for unity. Then the question is, "Does Christ justify the existence of sects?" From my limited knowledge of the New Testament I have no hesitancy in saying it is sinful.

I heartily endorse what a brother has to say on page 285. I believe he has about the correct notion of it. When we get down to "brass tacks," and quit quibbling over tweedle-dee and tweedle-dum, and do what the Lord says, we shall be seeking a basis on which all Christendom can unite. Let us consign to the flames all articles of faith or rules of practice or any other man-made creed, and take as our rule of faith and practice the New Testament. When we speak where the Bible speaks and are silent when the Bible is silent, we shall be at a point where all Christendom will be a united church of our Lord Jesus Christ.

ALBERT HOLLINGSWORTH.

Terre Haute, Ind., April 25.

While I may not be prepared just now to indorse *all* of the above, I wish to add emphasis to the concluding sentence: "When

we speak where the Bible speaks, and keep silent when the Bible is silent, we shall be at a point where all Christendom will be a church of the Lord Jesus Christ."

Dr. Miller speaks of having so many denominations just because of minor unimportant differences.* While grave questions confront us that must be taken care of at once, not only ministers of the gospel, but good Christian people stop to fuss and bother and argue about things that seem to me to be pure nonsense. That expression does not half tell it. If you will excuse slang I would put it this way: It seems just awful that good, educated people should waste their time and energy on things that are but little more than "tom-foolery." After I read "Pollyanna" some of the good friends in Medina told me I should read a new book entitled, I think, "The Inside of the Cup." Now, while there is a lot that is good in the book, the author, without the least bit of reason, drags into it the dispute of the doctrine of the immaculate conception of Jesus. I threw the book down in disgust and said, "What good can come by taking up a question like this, that has no possible bearing on the needs of the day?" There is enough tendency already, God knows, to question the truthfulness of the Bible as God's holy word. Suppose somebody has been brought into the church, prayer-meeting, or Sunday-school; and suppose, further, he has not given these matters much attention; what possible benefit could he get, spiritually or in any other way, by listening to this silly criticism? If that is a part of the "new higher criticism," I wish to know no more of it.

I now wish to give one more illustration about wasting our time and energy on a matter that cannot possibly benefit the world in any way, as I look at it. Some very good people are wasting their energy, and I do not know but a good part of their lives, toward what they call the importance of changing Sunday to Saturday. Such a course, as I see it, not only accomplishes

* It just now occurs to me that Dr. Miller is a Presbyterian—at least that is my recollection. Well, Mr. Calvert has just returned from the State conference of Congregational churches, and he says the matter came up there in regard to doubling up denominations. In fact, there has been talk for some years past of uniting the Congregationalists, Presbyterians, and the United Brethren. I think one thing that blocked the way was a disagreement as to what the new body should be called. Well, here comes in the joke on Dr. Miller. Mr. Calvert says the conference reported there are twelve kinds of Presbyterians. My good friend Miller, hadn't you Presbyterians better start the ball rolling by first reducing the number and the kind of Presbyterians! Couldn't you possibly coax them down to an even half-dozen?

nothing, but it blocks the way, mixes things up, handicaps themselves and everybody else they run against, without having accomplished any thing. I have wondered again and again how it was possible in this day and age of the world, when superstition and folly are fast giving way to good common sense and righteousness, that these people should *continue* in their queer notions. While I write, our people here in Ohio are discussing the adoption of eastern (New York) time in place of the present central (Chicago) time. I confess I think it will be an advantage to do away with having an hour's difference between Cleveland (and Medina) and New York; but the papers are full of what I cannot help looking at as silly talk about giving the people "more daylight" by changing the clock an hour ahead. I say, and have said repeatedly, change the clocks by all means, if it seems best; but do not by any means change the hour of getting up and going to bed, simply because the *clocks* have been changed. Neither is there any need of changing the time of starting and stopping our factories, the time of school, or time of going to church, prayer-meeting, etc. The time of starting business and closing it has been settled by universal consent largely, according to the rising and setting of the sun. Why in the world should we make *any* changes simply because the *clocks* are changed? When old Sol decides to change his time of rising in the morning and of going down at night, then we may consider a change in our habits.

I think no one will doubt for a minute that the saloons and the whole liquor traffic might have been banished long, long ago, had our churches and their respective pastors been united as they are getting to be, just now. The awakening to the evils of intemperance has been a long and slow process; but, may God be praised, it seems now fairly well in sight; and the work of driving them out, I verily believe, will unite our different denominations as nothing else has ever done.

I have alluded several times lately to the measures that are being adopted to save human life, and to alleviate sickness and suffering—the "safety first" organization. Now, if our churches, Sunday-schools, and Endeavor Societies could drop unimportant differences, and give the same attention to the children, including the grown-up children, how much might be accomplished! Let us keep the good old Bible as it is—speak when the Bible speaks, and be silent where the Bible is silent. There has been a discussion more or less for ages, perhaps, as

to what becomes of us immediately after death. Do we have a period of sleep, as some claim, or are all to be received, like the thief on the cross, in "paradise this day"? Perhaps it is well enough to search the scriptures carefully and see what they tell us about it; but I would not waste much time in the matter. Shall we not use the same time and energy in taking care of "thieves" who have not gone *so far* as to reach the cross? And look out for the children that are growing up, and see that they do not get into the *company* of thieves, and that there be no thief-breeding places such as saloons, etc., in your immediate neighborhood. By no means let us sit down with folded hands, as Dr. Miller puts it; but after we have gotten up and started, may God help us to use our strength and energy in fighting *real* evils—things that are a menace to bodily health as well as to spiritual growth. The dear Savior in his prayer in our opening text did not ask the great Father to take his chosen ones out of the world. He meant they should *stay* in the world, and that they should be "the salt of the earth;" that they should mix in with saints and sinners—*especially* the sinners. But he did pray that the Holy Spirit should keep them while in the world and protect them from all the evils surrounding them.

HORSERADISH AND CHRISTIANITY.

Perhaps, friends, you think the above a queer combination; but listen to the good brother below, who wants his name withheld:

In the April 1st number of GLEANINGS, page 277, you speak of selling horseradish, which cost 4 cts., at 10 cts. That is 150 per cent profit. If a pound of honey costs 10 cts., and sells for 25 cts., that is 150 per cent profit. Now, where can we draw the line between just and unjust gain—I mean, looking at it from the Christian standpoint! I have thought much on this subject, and have tried to look from both the producer's and the consumer's standpoint.

My good friend, I may have been a little careless; but did you not *also* notice the sentence, "but I tell you it took some 'bossing' to secure smooth running all the way from producer to consumer"? In the "4 cts." mentioned I did not count my time at all. Should not the man who studies and works up such a short cut have some pay in the shape of profit, for inventing the machinery, or establishing the industry? Mrs. Root has all her life "put on the brakes" to my "great discoveries," and she has often been right—they didn't pay cost. Therefore I greatly enjoyed demonstrating to her that I was making "a safe margin," and also having pleased customers. Once more,

there is a disposition all over the land to trade in "nickels" and avoid fussing with pennies. Five cents for something that costs four cents, or perhaps a little more, unless the demand is enormous (like *Unneeda* biscuit, say) would be risky. You see the cost of handling a five-cent deal is just as great as a 25 or 50 cent one.

BEES WANTED FOR ORANGE GROVES AS WELL AS APPLE ORCHARDS.

We clip the following from the *Florida Times-Union*. While the substance of it has appeared recently in these columns we reproduce it as showing how rapidly the general press is disseminating the truth concerning bees as pollinizers of fruit.

BEES: THEIR VALUE NOT APPRECIATED.

If the office of bees in increasing the yield from plants were fully understood, there would be many more apiaries in Florida than there are at present. It is said that encouragement of beekeeping in a certain district of Nebraska, where much alfalfa is grown, resulted in the addition of more than 200 per cent to the yield of good seed of high germinative powers in the field of that valuable legume and hay plant. We have heard of a citrus grove in South Florida which bore well for some years. Year before last some one discovered a bee-tree near this grove, cut it down, and thus dispersed its inhabitants. The following year there was almost no crop from that grove.

Not only fruit-growers but observant truckers are aware that they are much indebted to the bees. The little honey-gatherer dives into the depths of a blossom in search of nectar, and, emerging, carries off much pollen on its fuzzy coat. Within the next blossom of the same species it visits it rubs much of this pollen on the pistils, securing the fertilization of the ovules and the consequent formation of fruit. Cross-fertilization, so essential to the stamina of plants and animals, is made more certain by the visits of the bees. So well is the useful agency of the bees understood in many parts of the North that fruit-growers maintain bee colonies in their orchards—not so much for the honey, which is regarded rather as a by-product, but for the sake of increasing the yield of the trees.

If the bee is so useful in a climate so cold that the hives must be protected most of the winter, and the bees must be fed after a severe season in order to preserve them, how much more should the busy denizen of the hive be encouraged to thrive and multiply in a climate in which it can gather honey practically all the year, and in a land where fruit and vegetable growing is so great an industry! There is practically not a day in most of our years when the bee cannot find some blossom from which to gather honey—in a large part of Florida not a single day. This, therefore, should be a land of honey. Apiculture is so much easier a following in Florida than in more northerly latitudes—should be so much more remunerative—that we should have hundreds making it a livelihood.

Some fear stings; but there are breeds that are gentle in disposition, not easily aroused to attack. Experienced beekeepers often dispense with protection while working among their bees, having learned how to avoid alarming, or rousing the resentment of their charges. Apiculture does not call for a large expenditure of money to begin it, nor a large area in which to conduct it. There are instances of profitable bee colonies being maintained on house roofs in large cities. It makes no great draft upon one's time nor large drain upon one's pocketbook. Bees

are, of all living creatures on the farm, the most able to take care of themselves, especially in a genial climate, and there is no more certain crop than that of the hives.

"SEED BEES."

The expression, "seed bees," caught my attention while glancing over a copy of the *Farm and Fireside*.

A POUND OF SEED BEES.

By buying bees in pound packages one is able to get a start in beekeeping at the least cost, and the system is economical for those who have lost considerably during winter or in early spring.

The middle of last April I ordered three one-pound packages of bees, each pound to be supplied with a laying queen. The price per pound for bees was \$1.50, and the queens \$1.25 each. These came from Fitzpatrick, Alabama. They arrived on my Wisconsin place on the 18th of April in good condition. On arrival each pound was put on four drawn-out Hoffman frames, in double-walled hives. An extracted super was put on top.

They were fed daily on a syrup composed of equal parts of sugar and water. They immediately started brood-rearing, but one of the queens turned out to be a drone-layer. The other two packages increased.

These two pounds were increased to five rousing colonies; and, besides, over 100 pounds of honey were extracted.

The expression on these three packages was \$1.20. This brought the total up to \$9.40, or \$1.89 per colony.

The cages were six by seven, and eight inches high. They arrived as one package, being arranged one on top of another, two inches of space between each. Each was enclosed with netting, except two sides where a board was used.

I am sure it would not have been possible to get the above results if I had used single-walled hives, because the atmospheric changes would have been felt too keenly.—*Oscar Kasmeyer*.

Two important points are brought out in the above—first, that it is possible to purchase bees by the pound and have them shipped as far as from Alabama to Wisconsin, and still prove to be a profitable transaction—so much so that two pounds may increase to five and give over 100 pounds of extracted honey besides; and I am strongly impressed with the fact that young bees at the proper time in the spring may be shipped from Florida and other southern States to points here in the North so as to be a paying investment all around; and it may result in a great and growing industry.

THE "HOPE FARM MAN" OF THE RURAL NEW-YORKER, AND BEE CULTURE.

Our readers who are conversant with the *Rural New-Yorker* will be pleased to hear, I am sure, that the Hope Farm Man is getting interested in bee culture. He recently wrote the A. I. Root Co., asking some questions about the care of bees. After getting a reply from E. R. Root he writes as follows:

Mr. E. R. Root—I am very much pleased with your letter, and thank you heartily for sending it.

This is just exactly what I wanted, and really is the most interesting article on bees that I have read in a long time. It tells me exactly what I wanted to know, while I confess that most of the articles on bees don't seem to tell me any thing at all. What you say is exceedingly interesting, and I believe you are entirely right regarding the effect of a colony of bees upon apple and peach bloom, or setting of the fruit. Our bees appear to be very happy. I have one of the redheads who thinks he is going to make a beekeeper. The bees stung him the other day, and he certainly let out a number of screams, but I think he will get over it, and I am greatly pleased to have our children take so much interest in the care of these busy little creatures. It appears that I was right in thinking that there may be lazy bees as well as lazy men. I know that the hired man generally has his off days, when, if you put him alone at some work in the hot sun, he is sure to seek the shade and think his work over with great care.

I had a colored gentleman working for me once, and I tried to tell him how careful he must be to think his work over and plan it thoroughly before taking it up, as he could accomplish ever so much more if he had it thoroughly organized. I sent him to a back field to put a bag of fertilizer on some corn. After he had been over there a long time I thought I would go over and see how things were doing. There sat Alie under a tree, looking at the bag of fertilizer. When I asked him what he was doing he said, "Well, boss, you told me to study this here work mighty careful, and I am doing just what you told me." The whole subject of beekeeping is coming upon us as a very interesting thing. I really didn't know there was so much to it, and I am glad of the chance that has enabled us to get hold of these little friends. I am greatly obliged to you for your kindness in answering the questions.

New York, May 25. H. W. COLLINGWOOD.

IS THERE NO CHANCE FOR A POOR MAN TO KEEP BEES?

My dear Mr. Root:—I worked for so-called Christians for 25 cts. a day when 16 years old, and the memory of rats crawling over my bed at night still lingers. I got up in winter at five o'clock, and hauled manure all day in the cold for 25 cts. Were it not for the stupor whisky gets the laboring classes into, conditions would have improved long ago. But what can you expect!

It makes the hot blood come to my temples when I see the extravagances of rich men who control legislatures. They foist whisky on an unsuspecting public, and then appeal for votes from that same public. Roads are being made in this State that will not last. Sewers are put through and no guards on the mouths. These men are the enemies of society, who openly boast that woman suffrage is disrupting the home. I love bees, but if we keep on destroying homes, no one but rich men can keep them.

SAMUEL B. HENDERSON.

Centerville, Ind., Oct. 20.

My good friend, I too worked for 25 cents a day riding a horse to cultivate corn; but I had a good bed because I boarded and lodged myself when I got only 25 cents. I, too, feel the hot blood come to my temples when I see rich people wasting money on their diamond necklaces, pet dogs, etc.; but may I suggest to you and others who claim there is "no chance for a poor man," that many of the great men of our day, and *very many* of the rich men of our day, started as poor boys! Now, it is the poor boys who

are blessing the world. The sons and daughters of the *millionaires* are the ones to be pitied. Is it not so? I fervently thank God that he started me as a poor boy on a farm; and when Mrs. Root and I were married we had comparatively nothing; and I verily believe that, had our good parents been able to give us a thousand dollars, or ten thousand, to start a home with, it would have been a handicap instead of a blessing. I should like to ask all of our readers who agree with me in this to raise their hands; and as you drop your hands, let each and all thank God that he *was* born poor, and had to fight his way in this great busy world.

In regard to bees, where is the boy who can not scrape up money enough to buy a single colony to start with? and I believe his chances will be better with this single colony than if his father were to give him a whole apiary.

POULTRY-KEEPING IN FLORIDA.

The clipping below from the *Florida Grower* will answer a lot of questions:

POULTRY PAYS.

I cannot help replying to the man who made the statement some time ago to a northern friend that poultry did not pay in Florida. I arrived here on September 21, 1918, and on November 2 a friend set a hen for me, and the result was ten little chicks. I paid for the hen 75 cts. and 50 cts. for the eggs. On March 25, 1914, the pullets started laying, and on March 28 I sold four of the roosters at 21 cts. per pound; the four weighed seventeen pounds, for which I received \$3.57. The cost of the feed for the four months had been \$1, so, including the price of the hen and eggs, \$1.25, and feed \$1.00, I was \$1.32 to the good and I still had the hen and the four pullets. The hen started laying on February 15. On April 21 I set one of the pullets, and to-day, May 11, she hatched twelve chicks from the thirteen eggs I gave her, and the old hen is sitting again also, and another one of the pullets. I will leave it to you whether poultry pays or not.

G. H. N.

Davenport, Fla., May 12.

[You are certainly doing well; but you seem to have started a kind of perpetual-motion farm. But that is the way to do things, and we congratulate you upon your enterprise.—Ed.]

Permit me to say that what is stated in the above is true. Any person of fair skill with poultry can do it every time. I have done it for the past seven winters, with the exception of getting the pullets to lay in March or April. We generally reach our Florida home during the first week in November, and usually leave for the North about the middle of April. If you are successful with chickens here in the North or anywhere else, you will be likely to succeed in Florida, with the tremendous advantage of having no weather in winter that will interfere with the raising of chickens. I feel sure, too, that the fireless brooder is all that is needed in Florida at *any* season of the year.

HIGH-PRESSURE GARDENING

THE IRISH COBBLER POTATO, AND THE SPORTING HABIT OF POTATOES IN GENERAL.

This spring, as usual, when I wanted some choice potatoes to plant (especially the Red Bliss Triumph), I did not find any in our locality. I would, of course, have brought home some of that kind that grew in Florida, but they would not have sprouted in so short a time after being dug. I have mentioned the seed firm of F. W. Gibbons & Co., of Boston, Mass., who grow potatoes, especially for planting in the South, by the hundreds of carloads. I wrote a friend in the employ of the firm in regard to my wants, and he sent me some very choice Triumph potatoes, and also included some Irish Cobblers. Here is what he says about the latter:

Brother Root :—The Cobblers are as early as Bliss, and heavier croppers; but they need heavier fertilizing than the late varieties, as they have to ripen their crop in two weeks less time than the late varieties. If I can get my hands on an extra-fine strain of Golden Bantam corn I will mail it. By passing along among the farmers' wagons in August one often finds a particularly fine strain of vegetable. I saw a farmer with fancy Golden Bantam last summer, but failed to take his name and address.

The Irish Cobbler is supposed to be a sport (origin unknown). It is evidently a sport, not a seedling, because the type is not fixed. You plant twenty true to name; and when you dig them you will find some have reverted to some one of the original parents, and some in a field will have blossoms of different colors. The buyer thinks he has been given mixed seed; but it is simply some tubers that reverted, and consequently the careful Aroostook farmer keeps "roguing" out the varieties in order to hold the type. Now, the type is this ugly square-shaped deep-eyed tuber with a deep cavity at the stem end, and an ugly, deep, puckered-up eye at the seed, and it very much resembles a Naval; but this type is very early, and a heavy yielder. It must have good rich soil, as it has to do its work in ten days less time than later varieties of potatoes.

EDWIN E. HARRINGTON.

Malden, Mass., May 21.

P. S.—*You owe me nothing* for this. I am now and always shall be indebted to you for so much good that I absorb from the last half of *GLEANINGS*.

E. E. H.

The above interested me greatly, for I have been for years watching the tendency of the different varieties of potatoes to sport. For instance, for several seasons I selected the hills of a certain variety that kept green after the others had died down. In this way I created a *late* variety from what had formerly been an early potato. In a like manner you can, by diligence, build up in a few years almost any kind of potato you want. The specimen of Irish Cobbler alluded to is a large nice potato, smooth and white, but with very deep eyes—so deep, in fact, that the potato was most ungainly-looking compared with the smooth

round Triumph potatoes, as shown in the picture on page 317, April 15th issue.

In many localities, I believe, the Irish Cobbler is getting to be a great favorite as an extra-early potato.

I extract the following from the *Florida Grower* concerning the Irish Cobbler.

The Irish Cobbler is a good variety which is growing in popularity, and has the double advantage of being a very good keeper and shipper. The price of good guaranteed seed from any reputable house varies of course a little, but may be taken at an average of \$1.75 a bushel, or about \$4.50 a barrel.

SESAME IN THE WEST INDIES; NOT ONLY A FOOD BUT A HONEY-BEARING PLANT.

Mr. A. I. Root :—It gives me pleasure to send to you, under separate cover, some sesame. It is raw seed. I hope you will make several trials of parching so as to get the best flavor. I like it best served hot with a little white sugar. Eat and enjoy it.

My stock is down to about a quart now, so I could not fill many orders; but, all going well, I will plant in a week or so, and should have 500 lbs. in four months. Our sesame patch is alive with bees when in bloom.

Judging from the sesame letter in *GLEANINGS* (Mr. Thompson's) there are different varieties, to say the least. Some people who have written me from Texas describe the plant in a way that does not fit mine. Our sesame shells itself out when ripe. Pods open wide, and seed scatters at the least touch.

When you get your sesame parched just right, grind some very fine and try it in wheat-flour pancakes.

JOHN M. BREWER.

Columbia, Isle of Pines, W. I., May 12.

RAISINS BY THE TON, ETC.

Raisins are packed in great sheds, like corn in the East. One of our neighbors often has 100 or 150 tons on hand at once. We have only a small place, and our biggest raisin crop so far has been about 14 tons.

I wish every one in the country could read *Our Homes*. I am clipping the item on cigarettes, from New Zealand, and sending to my mother.

We have voted our whole county dry excepting Fresno and one oil town, Coalingo, and in doing so drove three roadhouses out of existence in our vicinity. We are only four miles from Fresno, and of course they catered to the tougher element of the city.

Our women take the franchise sensibly, and are, as a whole, more intelligent voters than the men. We have on overwhelmingly large Armenian, Greek, Italian, and some Mexican and other foreign population. Our district school has 14 nationalities, while they claim 31 for Fresno. This means civic and moral as well as financial problems.

Fresno, Cal.

CORA DENHAM.

CLAIMS RELATIONSHIP.

Mr. Root :—I get *GLEANINGS*, and think it is fine. Every man who is against the whisky traffic is my brother.

Woodville, Okla.

E. L. CLIMMER.

Mr. Root :—I keep bees. I don't subscribe for *GLEANINGS*, but I often read it. Don't you think I ought to have a dasheen?

C. C. MILLER.

Marengo, Ill., U. S. A.

HEALTH NOTES

THE HIGH COST OF LIVING—A NOVEL SUGGESTION.

We clip the following from the Cleveland *Plain Dealer*:

Germany has furnished this country a striking example of the benefits of adopting sanitary improvement, and has surprised even her own most optimistic advocates by proving that the expenditures that go for bettering community conditions not only pay by protecting health and giving comforts undreamed of to the people, but actually reduce the cost of living.

Invariably the proper paving, sewerage, and supplying of water lines to communities has added to the value of the property an amount in excess of the cost of the improvements. Even sewage disposal under the present extravagantly wasteful methods in which millions of dollars' worth of fertilizers are lost, may be considered a paying investment because no city will advance commercially or exist healthfully until some provision is made for the safe solution of this big problem. In like manner the various systems of maintaining proper sanitary conditions, which are operated at an apparent loss, such as cleaning streets, oiling roads, draining swamps, and enforcing proper rules of sanitation, are actually remunerative, because property in such communities demands higher rentals, and the people avoid heavy expense due to unnecessary sickness.

Let me add to the above that we not only reduce the high cost of living by such sanitary measures, but we add also to the pleasures and enjoyment of living. The man or woman who is well nourished, has plenty of pure air, drinks only pure water, and has a sponge bath every day, enjoys life to an extent that thousands of people know nothing of.

THE AIR WE BREATHE.

A. I. Root:—Wife and I find many interesting and helpful items in GLEANINGS. That which has from time to time been written concerning a careful or proper diet, or the preservation of health thereby, is read with much interest; but there is another phase of the subject of perhaps equal importance, about which less has been said; and that is, the air we breathe and the way in which we perform that function. Our benevolent creator has furnished an abundant supply of pure fresh air, and yet a large part of mankind appear to place little value on it, and are apt to make very meager arrangements for maintaining its purity. The fact is, that by far the greater part of men and women only about half breathe—that is to say, very seldom fill the lungs to the bottom, but form a habit of using only the upper part of the lungs; consequently the dark or corrupt stream of venous blood, as it returns to the lungs for purification, fails to meet with the requisite amount of oxygen, and hence is not changed, but passes on, entailing extra work on the kidneys and other organs of the body, resulting in a poisoned system and the manifold discomforts of ill health. Since the introduction of modern methods of heating houses, that much dreaded disease, tuberculosis, has rapidly increased—owing, no doubt, to the lack of proper or of sufficient ventilation. Wife and I are near to our three-score and ten. Our children are all gone to try the world for themselves, and we dwell alone. We sleep in a cold room, with windows up all kinds of weather. We still maintain the youthful glow; and while our neighbors all about us

have been greatly afflicted with colds and grip, we have been apparently immune. If people were less afraid of pure air, even if it is not always warm, and would cultivate the habit of deep breathing, it would free them from innumerable ills. Doubtless it is in accord with the will of God that we should understand and discreetly use the bountiful provision he has made for our sustenance and comfort while here below. And now "let us hear the conclusion of the whole matter. Fear God and keep his commandments, for this is the whole duty of man." Abiding in such a state we shall be willing faithfully to occupy until our Lord shall come; and whether the summons be "at midnight, at the cock-crowing, or in the morning," we shall go joyfully forth to meet him.

Barnesville, Ohio.

THOMAS DREVIES

THE PANAMA CANAL ZONE AS A "HEALTH RESORT."

We clip the following from some journal, the name of which we have lost:

After living for five or six years amid conditions which have produced such a startling reduction in the death-rate, will the men who have dug the Panama Canal be able to find any city in the United States which is sufficiently cleanly and healthy for them to live in? Let us hope, says *The Journal of the American Medical Association*, that the ten thousand Americans, returning to this country after a practical demonstration of what modern scientific knowledge can do to prevent disease, may prove to be the little leaven which will leaven the entire lump. If this is the case, the indirect benefits of the Panama Canal will be incomparably greater than its commercial or military value.

If it is indeed true, as we have continual reports, that our doctors are able to make such a place as the Canal Zone one of the healthiest localities in the whole world, shall we not in time be able to do the same thing in other places where people live, and bring about like conditions? May God be praised for what is being accomplished in the way of banishing preventable contagious diseases.

FROM "PRODUCER TO CONSUMER;" FROM OUR GOOD FRIEND T. GREINER.

I have finally come to it, namely, bought a hand mill, and have begun to eat my "graham-flour porridge" for breakfast. When you have a good mill (mine cost \$3.35), and take good wheat, and clean it by hand to get the cockle and chaff out of it, and then wash it and afterward thoroughly dry it, you get a nice clean product, and a good breakfast food at nominal cost. We cook it after recipes given by Terry and in GLEANINGS, and eat it with about its own bulk of apple sauce and a generous quantity of real Jersey cream. Probably it tastes good eaten with honey. But people who have never tried it can hardly appreciate how good apple sauce and good cream go with any kind of such breakfast food. Apple sauce and cream (not milk), half and half, alone make a dish fit for a king. But almost all cereals can be made to taste good when eaten with real cream or with good honey. My boys took quite a fancy at once to the home-made graham breakfast dish, and prefer it to shredded wheat, puffed wheat, and some of the other breakfast cereals we have been in the habit of using.

Your muffins are not so bad either; but they are

no cure for the high cost of living. When the recipe calls for three quarters of a cup of sugar, two eggs, and a chunk of butter, etc., all this for a very small batch, it cannot be said to be a very cheap food. Fresh eggs are 50 cents a dozen in our local stores; but, how many people have good honey or plenty of apples and real Jersey cream! And how many have strictly fresh eggs! I am thankful for living on the farm, even if it is a comparatively small one.

T. GREINER.

La Salle, N. Y., Jan. 27.

I am very glad indeed to get this testimonial from so good an authority. Although it has been talked over and over about the saving in cost by grinding your own wheat, and the still more important saving of doctors' bills, I fear few people realize what it amounts to. One great reason for the present "high cost of living" is because of the fashion of buying packages of food in paper boxes and tin cans. And even the farmers who grow the wheat, I fear, quite often send their wheat away, and pay for having it manufactured into cereals fixed up in fancy pasteboard boxes, paying profits to the manufacturer, middleman, and grocer, and finally getting the same wheat that grew on their own farm, or may have done so, and do not get as good wheat nor as delicious food as outlined in the above by friend Greiner. Apple-sauce and cream, and ground-wheat mush, are about the most delicious foods I know of, and also the most nourishing, so far as my experience goes. May God be praised for apples, and wheat and cream.

ROBBING SICK PEOPLE.

There is one institution that seems to be untiring in its efforts in exposing the many medical fakes, and that is the *Journal of the American Medical Association*, 535 North Dearborn St., Chicago. Every little while we get a pamphlet describing the methods employed by these proprietors of nostrums to fleece the unwary. Let me urge our readers to consult the above before sending money to *any* doctor or advertising "medical institute." Every little while they come out with a pamphlet to warn the public. From the list given I have selected the two following:

MURINE EYE REMEDY—PRICE 4 CTS.

This is a nostrum sold by two eclectic physicians of Chicago. While sold for \$1 an ounce, it is estimated that the stuff costs about 5 cents a gallon. The exploiters of Murine also conduct, as a side-line, a correspondence "college" of spectacle fitting—7 pages, illustrated.

THE OXYDONOR AND SIMILAR FAKES.

Gas-pipe therapy frauds. A description of the various worthless pieces of nickel-plated brass pipe that are sold to the gullible under the allegation that they possess curative value. Several variations of this fraud are on the market. Those dealt with in this pamphlet are the Electropoise, the Oxydonor, the Oxygenor, the Oxypathor, the Oxytonor, and the Oxybon—15 pages; illustrated.

What do you think of it, friends—a dollar an ounce for stuff that costs only five cents a gallon? The Department at Washington is carrying on investigations, and stopping the delivery of the mails of some of these parties. I notice Oxydonor is still getting money from the unwary, although it has been shown up in these pages for fully twenty years.

TEMPERANCE

DRUNKENNESS A DISEASE (?)

We clip the following from the *New Republic*:

Drunkenness is now almost universally recognized as a disease. Institutions all over the country, both public and private, have been instituted to cure this disease.

The newspapers all over the country carry advertisements of physicians and institutions who make it their business to cure this disease.

Medical societies all over the world are studying methods of curing this disease.

And while all this is going on, most States deliberately license saloons to spread this same disease for a share of the profit of the business.

By the way, what would you think of a man who wanted a license to spread hog cholera? That disease throughout the United States is one of the things that bring about the high cost of living, and millions of dollars are being lost because of it. Thanks to our Department of Agriculture,

however, our nation is getting the upper hand of it. Well, hog cholera kills hogs; but the booze business kills men—yes, men, women, and children; and the men it does not kill it reduces to the condition of hogs, or worse still. And yet we are licensing saloons—yes, right in the State of Ohio. What do you think of it?

THE UNITED STATES SUPREME COURT HITS THE LIQUOR BUSINESS ANOTHER TREMENDOUS BLOW.

We clip the following from the Lansing *Daily State Journal*:

LIQUOR'S BODY BLOW.

No longer is the widow of a drunkard to remain the helpless victim of the saloonkeepers who contributed to her husband's wrecked life. The United States Supreme Court has just so decided. Nor is it necessary that the victim die an accidental or violent death. The case in which the decision was rendered

is one in which the victim was wrecked by alcoholics and finally succumbed to disease brought on or aggravated by liquors.

Under the ruling, not only is the saloonkeeper liable for damages but his bondsmen also. Undoubtedly the first result of the decision will be the filing of thousands of personal-damage suits all over the country. There will be no haggling over the law. The United States Supreme Court has settled that. It will be merely a case of proving facts.

A second result of the ruling will be bankruptcy for a number of saloonkeepers whose cupidity and avariciousness have prevented them from heeding the demands of friends and relatives not to sell to known victims of liquor. Another result of the ruling will be a decided inclination of casualty companies and individuals against going on the bonds of saloonkeepers; and without bonds, licenses cannot be secured.

The country may expect a tremendous howl from the liquor interests and the organs in their control; but the decision will stand because it is right. It is in complete harmony with that changed and changing public opinion in regard to the liquor business. More and more the public is coming to look on liquor-selling as a form of slavery the victims of which are as much deprived of their manhood's rights to life, liberty, and the pursuit of happiness as ever was a black man, and public opinion is set against it as it was against slavery. The courts are responding to the changing public opinion. The liquor interests will not be able to change the law until they change the tide of public opinion.

"PROHIBITION DOESN'T PROHIBIT."

We clip the item below from *Farm and Fireside*:

SMILING THROUGH TEARS IN KANSAS.

- 87 counties without any insane.
- 54 counties without any feeble-minded.
- 96 counties without any inebriates.
- 38 counties without any poor-houses.
- 58 counties without any prisoners in jail.
- 65 counties without a representative in the State penitentiary.

With the above staring us in the face, how can any man (or woman) vote for the retention of the liquor-traffic? Think of it — 65 counties without a "representative" in the penitentiary.

SOMETHING FURTHER IN REGARD TO KANSAS.

From an address delivered before Congress by Ernest H. Cherrington, Dec. 10, 1913, we clip the following:

EFFECT OF PROHIBITION ON CRIME, PAUPERISM, AND INSANITY.

The Supreme Court of the United States is authority for the declaration that "the statistics of every State show a greater amount of crime and misery attributable to the use of ardent spirits obtained at these retail liquor saloons than to any other source."

No State of the Union has given prohibition so fair a trial as has Kansas. To-day that State presents the unparalleled record of almost two-thirds of its counties without a single prisoner serving sentence for crime, while in some of the counties a jury to try a criminal case has not been called in ten years.

Never mind, friends, if I have harped on this matter several times before. What does it mean when it can be truthfully said that *two-thirds of the counties* are without a

single prisoner serving a sentence for crime, and that in some counties a jury to try a criminal case has not been tried in *ten years*? What is the matter with the people of the United States that they should continue to "vote wet" when such facts as these are before them?

EDISON ON CIGARETTES, ETC.

One of our good friends sends us a clipping from the Detroit *Free Press*. It seems that Edison posted a notice on his factory in West Orange, N. J., reading, "Cigarettes not tolerated. They dull the brain." It seems that Henry Ford, the great automobile man, indorsed Edison. This aroused the ire of Percival F. Hill, President of the American Tobacco Co., and he makes a feeble attempt to defend the use of cigarettes. After reading his defense it occurs to us that *the money* that comes out of it is what they are after. We extract the following, taken from the Detroit *Free Press*:

"Inasmuch as millions of men use cigarettes, and perhaps even a larger percentage are educated people, the charge of feeble-mindedness lies against an overwhelming proportion of the commercial, professional, artistic, musical, and industrial world," continued Mr. Hill.

TREMENDOUS INCREASE IN 13 YEARS.

Mr. Hill gave figures showing that 15,812,092,000 cigarettes were made in the United States in 1918, against 2,600,000,000 in 1900, or an increase of 700 per cent in 13 years.

Mr. Hill said further that Mr. Edison should prove his assertion, in justice to millions of intelligent cigarette smokers, or give the manufacturers an opportunity to disprove it.

Our good friend A. N. Clark, of Lansing, Mich., who sends the clipping, comments as follows:

This defense of the cigarette by President Hill not only demonstrates the weakness of the defense, but indicates the moral make-up of a character so typical among modern trust officials.

Lansing, Mich., May 18.

A. N. CLARK.

BRYAN IN REGARD TO WOMAN SUFFRAGE.

In speaking of the women's victory in stopping the Colorado war, Mr. W. J. Bryan uttered the following, which we clip from the *Woman's Journal* for May 23:

"The battle is already won in ten States and in Alaska. Four more will come in line next November. The Eastern States are beginning to line up. The women of America are going to vote soon. No party question will prevent them; no color line will stop them; no State's rights issue will deter them. No State has any right to deny to half its citizens the right to share in government by the exercise of suffrage anywhere under the American flag. As citizens of the great American Republic, as members of the American family, and as units of the great American home, we will not permit such a travesty on democracy to exist any longer in this land of equal opportunity."

Amen to the above!

LISTERINE

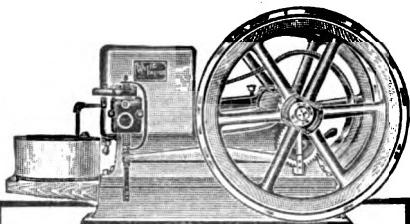


Use it every day

MOUTH hygiene is incomplete without a safe mouth-wash. Rinse the mouth with Listerine after brushing the teeth. It imparts a sense of cleanliness and purification and neutralizes breath odors. Listerine has enjoyed the confidence of physicians and dentists for more than thirty years.

All druggists sell Listerine

LAMBERT PHARMACAL COMPANY, St. Louis, Mo.



**NOBODY can sell you a better engine
and nobody will quote you as low
as my latest reduced Factory Prices
Direct to Users.**

WITTE Engines

Kerosene, Gasoline and Gas.

Sizes 2 to 22 H.P. stationary and mounted, (skids and trucks) with semi-steel detachable cylinders, vertical valves, and other features of merit without which no engine is now high-grade. Starts easily; no cranking; run without watching, 24 hours a day. Cheaper power, per horse, than ever before.

I made the WITTE, the leader in usefulness 27 years ago, when the gas engine business was in its swaddling clothes. I have kept it ahead ever since, as the thousands of my customers testify.

Buy Direct From Factory

60 Days' Free Trial. 5-Year Guaranty.

I give you lowest factory prices ever known for strictly high standard engines of proven worth. No reasonable terms refused if you don't wish to pay all cash. Get my new book FREE with latest prices.

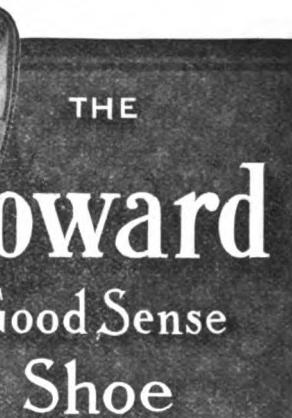
**ED. H. WITTE, WITTE IRON WORKS CO.
1931 OAKLAND AVE.,
KANSAS CITY, MISSOURI.**



Makes and burns its own gas and produces a pure white, steady, safe, 100 candle power light. No wick, smoke, dirt, grease or odor.

THE BEST LIGHT

Lighted Instantly. Over 200 styles. Agents wanted. Write for catalog.
**THE BEST LIGHT CO.,
306 E. 5th St., Canton, Ohio.**



Built to protect, help and strengthen growing foot-structures; supports the ankle, holds arch in place—corrects and prevents "flat-foot."

Coward Arch Support Shoe and Coward Extension Heel made by James S. Coward for over 33 years.
FOR CHILDREN, WOMEN AND MEN.
Send for Catalogue. Mail Orders Filled.

Sold Nowhere Else.
JAMES S. COWARD
264-274 Greenwich St., near Warren St., New York

Keep Ants Away

They will not attack or come near woodwork if it is painted with

AVENARIUS CARBOLINEUM

REGISTERED
and will stay away from beehives so protected. Write for circular.
Carbolineum Wood Preserv'g Co.
Dept. 103, Milwaukee, Wis.

Select ITALIAN Queens

SELECTED FOR BUSINESS. NOW READY.

Under date of December 24, 1913, a queen-breeder known the world over, and whose 1913 queen sales were well above the 5000 mark, writes:

"I had occasion, through the invitation of one of your customers, to visit his bee-yard where he showed me some of your stock. They were ordinary Italians, but in their storage he told me they excelled any other strain he had in his yard, and he had a good number of queens from other breeders. As he recommended these bees so highly, and I am always in the market for something new and better, that is the reason I am asking you to book me for the half-dosen queens next season."

"The proof of the pudding is in the eating," and I solicit your trial orders this season. Now is the time to order a half-dosen and try them out before requeening time in August and September. Safe arrival and satisfaction guaranteed. Money promptly returned if unable to fill orders on date specified. Apiary under State inspection.

Untested queen, 75 cts.; six, \$4.00; 25 or more, at 60 cts.; 1 lb. bees with untested queen in Root cage, \$2.50; six 1-lb. packages of bees with queens, \$13.00. Circular and a "Good Cheer" blotter free.

J. B. HOLLOPETER, Pentz, Clearfield Co., Pennsylvania



THREE-BANDED ITALIAN QUEENS

Rearred from our best stock in strong colonies and mated to select drones of superior honey-gathering strains. Bees that are industrious, hardy, and gentle; good red-clover workers, and good winterers. After July 1.

Untested, 75c each; six, \$4.00; twelve, \$7.50.

Tested, \$1.00 each.

Prices for larger quantities furnished on application. Prompt service, purity of mating, safe arrival in the U. S. or Canada, and satisfaction guaranteed.

H. C. SHORT, WINCHESTER, OHIO

W. H. LAWS

is prepared to take care of all your queen orders the coming season.

Twenty-six years of careful breeding places Laws' queens above the usual standard.

My bees, in my own and in the hands of others, have taken first premiums at the leading fairs all over the United States; and, in the hands of single individuals, have gathered over a car of honey in one season.

Tested queens ready now. Each, \$1; 12 for \$10.

Untested, after April 15, breeding queens, about fifty of the finest ready at any time: each, \$5.00.

W. H. LAWS, Beeville, Bee Co., Texas

Marchant's Island Bred Queens

Bred from selected mothers, and mated to isolated drones of a different strain. My aim is quality and not quantity. So if you want any of these choice purely mated three-banded Italian queens order now or you may not get them, as I am going to rear only a limited number. No disease, and your money back if not satisfied. The A. I. Root Co. use my queens, which is proof of their quality.

No need to write for lower prices.

Reference, The American Exchange Bank of this city.

Prices—Untested, single, \$1.50; 6 for \$6.00; 12 for \$10.00; in lots of 25 or more, 75 cts. each. Select tested, \$8.00. Breeders, \$5.00 and \$10.00.

A. B. Marchant, . . . Apalachicola, Florida

MILLER'S STRAIN ITALIAN QUEENS

By RETURN mail after June 5th to 10th, or money refunded. Bred from best RED-CLOVER strains in the U. S. In full colonies from my SUPERIOR BREEDERS; Northern bred for business; long-tongued; leather-colored or three-banded; gentle; winter well; hustlers; not inclined to swarm; roll honey in. One untested, \$1.00; 6, \$5.00; 12, \$9.00. One select untested, \$1.25; 6, \$6.00; 12, \$11.00. A specialist of 17 years' experience. . . . Safe arrival and satisfaction guaranteed.

I. F. MILLER, BROOKVILLE, PENNSYLVANIA

Queens - Queens

Bees by the Pound and Full Colonies

From a superior strain of THREE-BANDED ITALIANS. . . . Hardy, gentle, and they are hustlers. . . . Guaranteed to please you.

Send for My 1914 Descriptive Catalog

I have a large stock of modern BEE SUPPLIES always on hand. ROOT'S GOODS at factory schedule of prices, packed and delivered to my station. All orders will receive prompt and careful attention.

Earl M. Nichols, Lyonsville, Mass.

Archdekin's FINE ITALIAN QUEENS

THREE BANDED

Bred for Persistent Profitable Production of Honey. Prolific, hardy, gentle. The bee for pleasure or profit. One customer says, "Your queen soon had her ten frames running over with bees that are hustlers." Cells built in strong two-story colonies, and mated by best-known methods. No disease. Satisfaction guaranteed. Orders filled promptly. Ready May 20. Untested, \$1.00 each; six for \$5.50; dozen, \$10.00. Select tested, \$8.00 each.

J. F. Archdekin, Rt. 7, St. Joseph, Mo.

PURE
Extracted



HONEY

From the Apiary of
I. J. Todd,
Columbia,
Ohio.

No. 430. 1000 \$1.80.

WARRANTED
PURE • HONEY

FRANKLIN E. JAMES,
71 Arnold St., New Bedford, Mass.

No. 875. 1000 only \$1.80.

2lbs.
Pure Extracted

HONEY

From the Apiary of
W. E. Fowler,
Clintonville, Ct

[Label No. 530. 1000 only \$1.80.

ARMSTRONG'S HONEY
FROM THE APIARY OF
ANDREW ARMSTRONG
EPHRAIM, UTAH.

Label No. 126. 1000, 60c.

No extra charge for labels printed on gummed paper.

Space will not permit us to describe fully the above labels. Write for catalogue.

Address PEARL CARD CO., Dept. A, Clintonville, Conn.

QUEENS!

Quirin's Improved Superior Italian Bees and Queens. . . They are Northern Bred and are Hardy. . . Over 20 Years a Breeder.

	Before July 1st		After July 1st			
	1	6	12	1	6	12
Select untested . . .	1.00	5.00	9.00	.75	4.00	7.00
Tested . . .	1.50	8.00	15.00	1.00	5.00	9.00
Select tested . . .	2.00	10.00	18.00	1.50	8.00	15.00
2-comb nuclei . . .	2.50	14.00	25.00	2.25	12.00	22.00
3-comb nuclei . . .	3.50	20.00	35.00	3.25	18.00	38.00
5-frame colony . . .	6.00	30.00		5.00	25.00	
10-frame colony . . .	7.50	38.00		6.50	32.00	
1-1/2 lb. pkg. bees . . .	1.50	7.00		1.00	5.00	
1-lb. pkg. bees . . .	2.00	10.00		1.50	8.00	

BREEDERS—the cream selected from our entire stock of outyards; nothing better. These breeders \$6.00 each.

Can furnish bees on Danzenbaker and L. or Hoffman frames. Do not write for lower prices even if you want 1000 queens or 100 colonies. Price is already low, considering the quality of our stock and prompt service.

Above price on bees by pound, nuclei, and colonies, does not include queen. You are to select such queen as you wish with the bees, and add the price.

ALL ORDERS FILLED PROMPTLY
FROM NOW ON.

Send for testimonials. Orders booked now.

H. G. Quirin - the - Queen-Breeder
BELLEVUE, OHIO



Get Your QUEENS Direct from Italy

May to September—Tested, \$2.40; Champion Layers, \$4.00. Dead queens replaced if box is returned unopened. Discount to dealers or for quantities. Beautiful unsolicited testimonials. Honest dealing. For further particulars write to

MALAN BROTHERS
Queen-breeders
Lucerne, San Giavanna, Italy



Am now shipping Untested Queens
from my

Celebrated Pedigreed Strain
My bees are the product of many years of breeding by SWARTHMORE and HENRY ALLEY. Both names stand out like beacon lights among our past and present breeders, for the best queens ever produced in the United States. Never had foul brood.

Swarthmore Apiaries
Swarthmore, Pa.

Goldens that are Golden

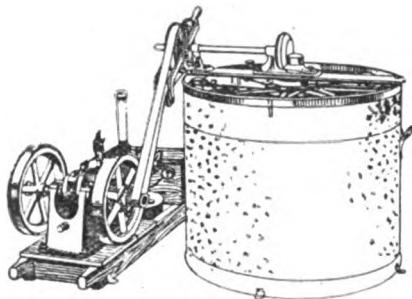
I have disposed of business in Philadelphia, and will raise all queens that I possibly can the coming season, and will fill all unfilled orders first. Queens are getting better each year. Prices: Select untested, \$1.50; tested, \$3.00; breeders, \$5 to \$10. Send for booklet. GEO. M. STEELE, 30 So. 40th St., PHILADELPHIA, PA.

ITALIAN QUEENS--NORTHERN BRED

Superior winterers; descriptive list free. Bees by the pound. Untested, \$1.00; select tested, \$1.50. Plans "How to Introduce Queens," 15c; "How to Increase," 15c; both for 25 c.

E. E. MOTT, Glenwood, Mich.

ROOT'S POWER EXTRACTORS for the LARGE PRODUCER for 1914



The late W. Z. Hutchinson, when asked as to what would combine best with beekeeping, said, "The best thing to go with bees is—more bees." If more bees is the slogan, then the best equipment should be installed. This would be an outfit that will handle advantageously the product of 200 or more colonies with a minimum of time and labor.

POWER EXTRACTING OUTFIT.—The value of this cannot be gauged entirely by the number of days it is used during the season. It should be remembered that it displaces a large amount of extra equipment in the way of extra supers and combs. The extracting must be done quickly in order to hold in check the swarming that is sure to follow unless room is given when needed. The amount thus saved, including reduction of labor and time, will materially reduce cost of production.

ENGINE.—This should not be selected without due examination. There are certain types of gasoline-engines that are not fitted for driving honey-extractors. Machines requiring to be started and stopped an endless number of times during the day require an engine of special construction, and the beekeeper will do well to investigate thoroughly these points before purchasing. Our new engines, the "BUSY BEE," are selected for and are exactly adapted for just this kind of work.

CAPPING-MELTER.—No extracting house is complete without one. We have a number of styles and sizes to select from. Illustrations of all these will be found in our large catalog. The smaller sizes are intended to be used with wax-presses, which also are shown.

HONEY-KNIVES.—For rapid and easy work our new steam honey-knives can't be beat. Extra tubing is furnished when ordered. Send for our new 34-page book, "Power Honey-extractors," describing these fully.

These equipments are supplied by various dealers throughout the country. Information as to nearest dealer on request.



The A. I. Root Co., Medina, Ohio

Classified Advertisements

Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the Classified Columns or we will not be responsible for errors.

HONEY AND WAX FOR SALE

FOR SALE.—Extracted honey, quality fine. Price 9 cts. per lb. JOS. HANKE, Port Washington, Wis.

FOR SALE.—Finest quality buckwheat honey in cans and kegs. Clover honey all sold. C. J. BALDRIDGE, Kendals, N. Y.

FOR SALE.—No. 1 white comb, \$8.00 per case; fancy, \$8.25; 24 Danz. sections to case, six cases to carrier. WILEY A. LATSHAW, Carlisle, Ind.

FOR SALE.—Orange honey; 60-lb. cans, 2 in a case, at 9 cts. Sample free. JAMES MCKEE, Riverside, Cal.

No. 1 white gallberry comb honey in 24-lb. shipping-cases, \$8.00 per case. J. WARREN SHERMAN, Valdosta, Ga.

HONEY AND WAX WANTED

WANTED.—Comb, extracted honey, and beeswax. R. A. BURNETT & Co., 173 So. Water St., Chicago.

WANTED.—Comb honey and beeswax. State what you have and price. J. E. HARRIS, Morristown, Tenn.

WANTED.—Honey, extracted and comb. Will buy or handle on commission. Beeswax—will pay highest price. HILDEBTH & SEGELEN, New York, N. Y.

FOR SALE

FOR SALE.—A full line of Root's goods at Root's prices. A. L. HEALY, Mayaguez, Porto Rico.

FOR SALE.—Full line of Root's goods at factory prices. E. M. DUNKEL, Osceola Mills, Pa.

FOR SALE.—Better hives for less money. Beekeepers' supplies and standard-bred Italian bees. Write for catalog. A. E. BUDICK, Sunnyside, Wash.

Peerless hives are good hives. Write for catalog and testimonials. L. F. HOWDEN MFG. CO., Fillmore, N. Y.

Beekeepers, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap. WHITE MFG. CO., Greenville, Texas.

FOR SALE.—500 cases of empty five-gallon honey-cans at 25 cts. per case. J. E. CRANE & SON, Middlebury, Vt.

The A. I. Root Co.'s Canadian House, Dadant foundation, bees, queens, honey, wax, poultry supplies, seeds. Write for catalog. THE CHAS. E. HOPPER CO., 185 Wright Ave., Toronto, Ontario.

FOR SALE.—30 dovetailed 10-frame hives with Colorado covers, fine condition; price 90 cts. each without frames, or \$25 for the lot.

L. F. HOWDEN MFG. CO., Fillmore, N. Y.

"Root" bee supplies, "American" honey-cans, and "Weed Process" foundation exchanged for beeswax and honey. Cash prices on request.

SUPERIOR HONEY CO., Ogden, Utah.
(Branch at Idaho Falls, Idaho.)

Why use cans? Kegs are cheaper and easier to fill and handle; 180-lb. size with 2-inch hole and plug, 50 cts. each f. o. b. factory.

N. L. STEVENS, Venice Center, N. Y.

FOR SALE.—1150 No. 2 4 1/4 x 1 1/2 sections; 20 8-frame hives; 5 excluders; 35 T supers, 8-frame; 10 8-frame hive-bodies, K. D.; 1 2-frame Cowan extractor, never used, and one bee-tent. Price \$47. I. W. SCOTT, Bement, Ill.

FOR SALE.—110 8-fr. bodies, extracting combs; 20 8-fr. bodies, new frames, full sheets; 55 8-fr. bodies, full old frames; 90 8-fr. bodies, full new frames; 144 bottoms; 188 covers, ventilated gable; 80 lbs. medium-brood foundation; 350 new frames, flat; 100 8-fr. bodies, new, flat; 50 covers new, flat; 160 wood-bound queen-excluders. All bodies nailed and painted. Frames are Hoffman self-spacing and wired. HOMER MATHEWS, 70 Bennett Ave., Binghamton, N. Y.

WANTS AND EXCHANGES

WANTED.—To furnish every beekeeper within 500 miles of Boise, Idaho, with the best and cheapest bee supplies on the market, *quality considered*. Send me your order or a list of your requirements for 1914. Our catalog and price list will be mailed to you free. Order early and get the discounts.

C. E. SHARVER, Boise, Idaho.

REAL ESTATE

Virginia fertile farms, \$15 an acre up. Easy payments. Send names of two friends interested in Virginia, and receive our beautiful magazine one year free. F. H. LABAUME, Agr'l Agt. Norfolk & Western Ry., Room 246, N.W. Bldg., Roanoke, Va.

BEES AND QUEENS

Phelps' Golden Italian Queens will please you. C. W. PHELPS & SON, 3 Wilcox St., Binghamton, N. Y.

FOR SALE.—Italian bees, \$8.00 per colony. W. C. DAVENPORT, 2201 Pioneer Road, Evanston, Ill.

Pure Italian bees or their hybrids in L. 10 frames, wired, full foundation, 1 or 100. JOS. WALRATH, Antioch, Cal.

Connecticut queens, 3-banded Italians only; large and vigorous; ready May 15. Price list. W. K. ROCKWELL, Bloomfield, Ct.

Select untested queens, 75 cts. each; bees, \$1.25 per pound. All good; guaranteed to give satisfaction. THE STOVER APIARIES, Mayhew, Miss.

Phelps' Golden Italian Bees are hustlers. C. W. PHELPS & SON, 3 Wilcox St., Binghamton, N. Y.

Try my bright queens. Select untested, \$1.00; \$9.00 per 12. Safe arrival and satisfaction guaranteed. M. BATES, Rt. 4, Greenville, Ala.

Leather-colored Italian queens June 15. Circular free. No foul brood. One, 85 cts.; 6, \$4.50; dozen, \$8.00. D. G. LITTLE, Hartley, Iowa.

Three-band Italian queens. Tested, \$1.00; untested, 75 cts. Ready May 15. S. CLICK, Mt. Jackson, Va.

FOR SALE.—150 colonies tested Italian bees; honey-house, tent-house, and complete extracting equipment. H. E. DIKE, Calabasas, Cal.

FOR SALE.—Fine Italian queens. See my large ad. in this issue.

J. F. ARCHDEKIN, Rt. 7, St. Joseph, Mo

Golden Italian queens, Northern bred. Have wintered perfectly. Untested, 1, \$1.00; dozen, \$10.00. J. STUART SCOFIELD, Kirkwood, N. Y.

Golden yellow Italian queens my specialty. Untested, \$1.00; tested, \$1.50. Ready April 1. Safe arrival guaranteed. E. A. SIMMONS, Greenville, Ala.

FOR SALE.—By return mail, select tested Italian queens, \$1.00 each; untested, 75 cts.; breeders, \$2.00; grades, 50 cts. No disease. WILMER CLARKE, Box 200, Earlville, Mad. Co., N. Y.

Untested Italian queens, 75 cts. each; six, \$4.00; 1 lb. teed with queen in Root cage, \$2.50. Circular and "Good Cheer" blotter free. J. B. HOLLOPETER, Pents, Pa.

Choice Italian virgins, 3 for \$1.00; warranted, 75 cts. each; tested, \$1.25; breeding queens, \$2 to \$5 each by return mail. STANLEY & FINCH, 1451 Ogden Ave., Chicago, Ill.

Northern-reared queens of Moore's strain of leather-colored three-banded Italians. After June 20, untested, \$1.00 each; 6 for \$5.00; 12 for \$9.00. RAMER & GLUEN, Harmony, Minn.

QUEENS OF QUALITY.—Three-band, leather color, select untested, 75 cts. each; \$8.00 per dozen. Satisfaction guaranteed. Circular free. J. I. BANKS, Liberty, Tenn.

Golden Italian queens, tested, \$1.00; select tested, \$1.25; untested, 70 cts.; dozen, \$8.00; untested, after July 1, 60 cts.; dozen, \$7.00. D. T. GASTER, Rt. 2, Randleman, N. C.

FOR SALE.—Golden Italian queens that produce golden bees; for gentleness and honey-gathering they are equal to any. Every queen guaranteed. Price \$1.00; 6 for \$5.00. WM. S. BARNETT, Barnett's, Va.

Bees and queens; three-banded Italians; 1 lb. bees with queen, \$2.00; $\frac{1}{2}$ lb. with queen, \$1.50. Untested queens, one, 75 cts.; 6, \$4.25; 12, \$8.00. Safe arrival. W. J. FOREHAND, Ft. Deposit, Ala.

Queens by return mail, or your money back. See larger ad. Write for free booklet, "How to Transfer, Get Honey, and Increase."

J. M. GINGERICH, Arthur, Ill.

Three-banded red-clover bees. Nuclei, from one to three frames, at \$1.00 a frame. Tested queen, \$1.25 extra. Untested queens, \$1.00. Full colonies in 10-frame hives, \$8.00. Queens extra.

J. W. LEIB, 563 S. Ohio Ave., Columbus, Ohio.

FOR SALE.—After June 20, fine golden Italians; tested, 75 cts. each; six, \$4.00; tested, \$1.25 each; few choice breeders, \$3.00 each. No better honey-gatherers. Will resist brood diseases. Cash with order. EDW. REDDOUT, Box 48, Lysander, N. Y.

Phelps' Golden Italian Queens combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; six, \$5.00; tested \$3.00; breeders, \$5.00 and \$10.00. C. W. PHelps & SON, 3 Wilcox St., Binghamton, N. Y.

FOR SALE.—Italian bees, 1 lb. with queen, \$2.25; 1 frame with queen, \$2.00. Queens, 75 cts. each. Safe delivery guaranteed; 20-page catalog with beginner's outfit, for stamp. THE DEBOY TAYLOR CO., Newark, N. Y. (formerly Lyons).

Queens and bees for sale.—See our large advertisement elsewhere in this journal, and read The A. I. Root Co. letter to us regarding our queens. Write at once for large bee and queen circular.

THE PENN CO., Penn, Miss.

California Italian queens, three-banded and Goldens; also bees by the pound for June and later delivery. Booked full till June 1. Circular and price list free. Write J. E. WING,

155 Schiele Ave., San Jose, Cal.

Golden Italian queens that produce golden bees, the brightest kind, gentle, and as good honey-gatherers as can be found. Each, \$1.00; six, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.

J. B. BROCKWELL, Barnett's, Va.

Golden Untested Italian Queens, \$1.00; six for \$5.00. These bees are gentle, prolific, energetic, and pretty. Under date of May 2 an old customer—Chas. Stewart, Johnstown, N. Y., State Bee Inspector—writes, "Received in fine condition 10 queens." Ready to mail. J. B. CASE, Port Orange, Fla.

Golden and three-band Italian and Carniolan queens ready to ship after April 1. Tested, \$1.00; 8 to 6, 95 cts. each; 6 to 12 or more, 90 cts. each. Untested, 75 cts. each; 8 to 6, 70 cts.; 6 or more, 65 cts. each. Bees, per lb., \$1.50; nuclei, per frame, \$1.50. C. B. BANKSTON, Buffalo, Leon Co., Tex.

Try Forehand's three-band Italian queens. They are raised from imported stock, unexcelled for honey and gentleness. One untested, 75 cts.; 6, \$4.25; 12, \$8.00. Send me your order; and if not satisfied I will return money. Safe arrival.

N. FOREHAND, Rt. 2, Brewton, Ala.

Dunn's Golden Italian queens, bred strictly for business, that produce a strong race of honey-gatherers. March 1 to Oct. 15: One, mated, 75 cts.; 6, \$4.25; 12, \$8.25; 50, \$32.50; 100, \$60.00. Tested, \$3.00; breeders, \$10.00. L. J. DUNN, Queen-breeders, Box 337G, Rt. 6, San Jose, Cal.

Italian untested queens by return mail, or soon. We keep increasing our output, and hope to keep up with orders. Our queens we guarantee will satisfy you; no disease. One for 75 cts.; 6 for \$4.25; 12 for \$8.00; 100 for \$60. Tested queens, \$1.25. If you are particular about your queens, we wish to supply you. W. D. ACHORD, Fitzpatrick, Ala.

Golden and three-banded Italians—ready March 1. They have been bred for three points—prolificness, gentleness, and honey-gathering qualities. Select untested, each, 75 cts.; six, \$4.25; 12, \$8.25; 50, \$32.50; 100, \$60.00. Tested, \$1.50; select tested, \$2.00; three-banded breeders, \$4.00; golden breeders, \$5.00.

GAEDEN CITY APPIARY CO.,
Rt. 3, Box 86, San Jose, Cal.

FOR SALE.—Three-banded Italian queens, from the best honey-gathering strains, that are hardy and gentle. Untested queens, 75 cts.; 6, \$4.25; 12, \$8.00; tested queens, \$1.25; 6, \$7.00; 12, \$12.00. Selected queens, add 25 cts. each to above prices. Breeding queens, \$3.00 to \$5.00 each. For queens in large quantities, write for prices and circulars.

ROBERT B. SPICER, Wharton, N. J.

FOR SALE.—Italian queens, the three-banded leather-colored hustlers. Queens are bred from a few select colonies, the record-breakers out of over 700. Tested, \$1.25; 6, \$7.25; select, \$1.50; 6, \$8.75; untested, 75 cts.; 6, \$4.25; 12, \$8.25; select, 90 cts.; 6, \$5.00; 12, \$9.00. Breeders, \$3.00 to \$5.00 each. Queens are ready to mail now. Satisfaction and safe arrival guaranteed. No disease.

BROWN & BERRY, Hayneville, Ala.

Famous North Carolina bred Italian queens for sale—(red-clover three-banders); honey-gatherers, good as the best. Strictly reared from Geo. B. Howe's best breeders, mated with Root's, Moore's, Davis' select drones; bees that get the honey; free of disease. Untested, 1, 75 cts.; dozen, \$7.50. Select untested, 1, \$1.00; dozen, \$9.00. Tested, 1, \$1.25. Select tested, \$1.50. Extra select tested, \$2.00. Breeders, \$3.00 to \$5.00.

H. B. MURRAY, Liberty, N. C.

BEES AND QUEENS.—Queens bred from Doolittle's best stock, untested, 60 cts. each; \$6.60 per dozen; \$50 per 100. Same stock of year-old queens removed from our colonies to prevent swarming, 50 cts. each; \$5.40 per dozen; \$40 per 100. Delivery guaranteed. Nuclei, two-frame, \$1.50; three-frame, \$2.00. Add price of above queens wanted. We have a rare bargain of apiary of several hundred colonies of bees for sale on easy terms. Particulars on request.

SPENCER APIARIES, Nordhoff, Cal.

If you need queens by return mail we can fill your order. Three-band Italians only. Tested, \$1.00 each; untested, 75 cts.; \$8.00 per dozen. All queens guaranteed to be good, or money refunded. J. W. K. SHAW & CO., Loreauville, Iberia Parish, La.

Three-banded Italian queens: Before July 1, untested, 1, \$1.00; 6, \$5.00; 12, \$9.00; select untested, \$1.25; 6, \$6.25; 12, \$11.00. After July 1, untested, 1, 75 cts.; 6, \$4.00; 12, \$7.00; select untested, 1, \$1.00; 6, \$5.00; 12, \$8.50. One-frame nucleus, 75 cts.; two-frame, \$1.50; three-frame, \$2.25. To each nucleus add price of queen. Our queens are reared in a locality where there has never been disease, and reared from strong vigorous colonies. The apiary is under most competent supervision. Safe arrival and satisfaction guaranteed.

HORNER QUEEN & BEE CO., Ltd., Youngsville, Pa.

Guaranteed purely mated 3-band Italian queens, J. E. Hand strain, bred for gentle, prolific, honey-gathering, wintering, and long life. State Inspector's certificate. Queens by return mail, or your money back. Before July 1, select untested, one, \$1; 6, \$5; tested, one, \$1.25; 6, \$7; select tested, one, \$1.75; 6, \$9. Breeders, \$5. After July 1, select untested, one, 75 cts.; 6, \$4; 12, \$7; tested, one, \$1; 6, \$5; 12, \$9. Select tested, one, \$1.25; 6, \$7; 12, \$13. Breeders, \$4; 10 per cent discount on 30 days' advance orders. Safe delivery guaranteed in United States and Canada. Reference, First National Bank. J. M. GINGERICH, Arthur, Ill.

POULTRY

FOR SALE—Sicilian Buttercup eggs for hatching, \$1.50 per 15 eggs.
L. S. GRIGGS, 711 Avon St., Flint, Mich.

Eggs.—20 for \$1.00; leading varieties prize poultry, pigeons, hares, etc. Booklet free. Large illustrated catalog, 10 cts. F. G. WILE, Telford, Pa.

S. C. White Minorcas, \$8.00 per 15; R. C. Buff Leghorns, S. C. Brown Leghorns, and Partridge Wyandottes, \$1.00 per 15.
HILLCREST FARM, Winchester, Ind.

Runner and Pekin Ducklings and hatching eggs. White-egg strain. Blue-ribbon stock. Also drakes. Catalog for stamp.

THE DERBY TAYLOR CO., Newark, N. Y.

HELP WANTED

WANTED.—Experienced beekeeper for comb honey.
W. LINDEMAYER, Jr., Ft. Collins, Colo.

WANTED.—Reliable man of good habits to work with bees the coming season. State age, experience, and wages first letter.

THE ROCKY MOUNTAIN BEE CO., Forsyth, Mont.

WANTED.—Man (married preferred) experienced in queen-raising; employment by the year on a salary and percentage.

OGDEN BEE AND HONEY CO., Ogden, Utah.

BEEKEEPERS' DIRECTORY

If you need queens by return mail send to J. W. K. SHAW & CO., Loreauville, Iberia Parish, La.

Nutmeg Italian queens, leather color, after June 1, \$1.00 by return mail. A. W. YATES, Hartford, Ct.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortland St., New York.

QUEENS.—Improved red-clover Italians bred for business June 1 to Nov. 15, untested queens, 75c each; dozen, \$8.00; select, \$1.00 each; dozen, \$10; tested queens, \$1.25 each; dozen, \$12.00. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Boyd, Ky.

PUBLICATIONS ON BEE CULTURE

(Please use coupon below, check-
(ing the numbers of items wanted)

The pamphlets and booklets listed below are of more than ordinary interest.

MY FIRST SEASON'S EXPERIENCE

1 WITH THE HONEYBEE. By the "Spectator," of the *Outlook*, of New York. A ten-page leaflet detailing the experiences of this well-known writer. You will read the leaflet through before you lay it down. Free.

2 THE BEEKEEPER AND FRUIT-GROWER. A 15-page booklet giving actual facts regarding the value of bees to fruit, and showing how beekeeping may be doubly profitable to the fruit-grower. Fruit-growers are realizing as never before the necessity of having honeybees in close proximity to their blossoming fruit. Free.

4 CATALOG OF BEEKEEPERS' SUPPLIES. Our complete catalog will be mailed free to any address on request.

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9 HOW TO KEEP BEES. A book of 228 pages detailing in a most interesting manner the experiences of a beginner in such a way as to help other beginners. Price \$1.00 postpaid.

10 THE A B C OF BEE CULTURE. A complete encyclopedia of bees, of 712 pages, fully illustrated, \$2.00 postpaid; half leather, \$2.75.

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12 BACK-YARD BEEKEEPING. Six interesting lessons written in readable newspaper style. Many facts encouraging the "city bound" man or woman with the back-to-the-land longing. Free.

13 THE BUCKEYE BEEHIVE, or the management of bees in double-walled hives. Of special interest to the amateur beekeeper. The most complete booklet we publish for free distribution. Illustrated throughout; 84 pages.

14 ADVANCED BEE CULTURE. A beautifully printed book. Best plate paper has been used throughout its 200 pages, with the result that its many fine illustrations are unusually clear in every detail. Bound in attractive and substantial cloth; \$1.00 per copy, postpaid.

The coupon below may be used as an order sheet by properly checking the numbers of items wanted, and adding your signature, and remittance if required.

CUT COUPON HERE

The A. I. Root Co., Medina, Ohio.

Please send me the items checked. I enclose

\$..... to cover the cost

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Town.....

B. C. State.....

SPECIAL NOTICES

By Our BUSINESS MANAGER

BUCKWHEAT SEED.

We are prepared to ship from here or Chicago either silverhull or Japanese buckwheat seed at \$3.00 per 100 lbs., bags included. We can also supply silverhull from eastern New York, while the supply is still unsold, at the same rate. Any less than 100 lbs. would go from Medina at \$1.65 per bushel of 50 lbs.; 90 cts. per half bushel; 50 cts. per peck; 5 cts. per pound, mail charges extra, if sent parcel post.

BEESWAX WANTED.

We are still using beeswax at the rate of over 30,000 pounds a month, and have only two to three weeks' supply ahead of us. Very soon the demand for comb foundation will let up; but we expect to continue buying for next season. Prices have reached a very high level in recent months, and are bound to come down somewhat in the months ahead. As you accumulate supplies in extracting, let us hear from you when you have it ready for market, stating quantity, and we will quote best price available at time offered. For shipments started before July 1 we will continue to pay 88 cents cash, 85 trade, delivered here for good average wax. Send shipping receipt with weight inserted, and write us, giving gross tare and net weight. Be sure your name or other identifying mark is on the package, whether sent by freight, express, or mail.

SPECIAL NOTICES

A. I. Root

THE AMERICAN POULTRY JOURNAL YEARBOOK FOR 1914.

The above is the title of a very pretty and useful poultry-book published by the American Poultry Journal, 542 South Dearborn St., Chicago. It contains 408 pages, 8 colored pictures of chickens, and a lot of valuable matter, especially regarding the progress of the poultry business up to date. Nearly half the book is occupied by show reports, which are not particularly interesting to me, mostly because I have not time to go into it. But there is one article in it by our old friend Stoddard that I think is worth the price of the book and more too. It interests me because of poultry-keeping in warm climates, where expensive houses are not needed. And let me digress right here to mention the fearful outlay of money that is worse than wasted by building poultry-houses and chicken-coops of all sorts to "keep the fowls warm." All over Florida these structures, especially those belonging to people who came from the North, who think chickens must have a roof, when they would be thousand times better off without, would be more profitable if the walls were of poultry-netting instead of boards that cost money.

Our good friend Stoddard declares there is no particular need of a roof. After some experience, however, I find that even the chickens that roost in the trees prefer to get under a shelter when we have a cold storm. But one of the problems in the South is to prevent the chickens from roosting in the trees; and I for one would permit them to do so were it not for the difficulty of getting hold of them when we want one, and the danger from owls, which sometimes do considerable damage among the chickens in the tree-tops. Friend Stoddard, like myself, has run against the problem of getting them out of the trees and making them go into their appointed roosting-places. It seems he has also discovered, like myself, that it is not a very difficult matter to make them roost where we wish and not where they wish. Permit me to make a little extract from the way he does it:

"You will have to go out at dusk where they are, a few evenings at first, with a cloth tied to the tip of a fishing-pole, and gently admonish the adventurous birds that want to roost outside on top. If your birds are tame (as, of course, you have brought them up to be), and you use gentle tact, it is surprising how few lessons are necessary before they learn to love their proper perches inside, and take to them with unfailing regularity. Don't go in and thrash around until you get the whole gang scared out that

are already in. Why do I mention such trivial details? Well, there are so many poultry-keepers who are blessed fools, and no more fit to manage birds than to navigate a big ocean liner; and also there are many beginners who are intelligent, and only need to have these little things explained to them once for all."

There is another quite valuable article in regard to having a little yard and roosting-place for each laying hen while she is being tested, instead of using trap-nests. This comes from a government expert and lecturer in South Australia. The book contains, besides a great amount of statistics, a valuable treatise in regard to diseases, the folly of trying to cure a sick hen with drugs, etc.

I wish to say the book, if well studied, ought to be of great value to any one who is deeply interested in poultry. The price (bound in paper, with a good substantial strawboard cover), is only 50 cents; cloth, \$1.00. Address as above.

TEMPERANCE AND MISSIONARY WORK IN NEW MEXICO.

A few years ago a lady missionary from New Mexico gave us a talk at our evening prayer-meeting in regard to the great need of spreading the gospel, and of education and civilization. In the greater part of New Mexico, she says that those who visit only towns along railroads and the larger cities have no idea of the ignorance, destitution, and superstition existing among the great bulk of the inhabitants. Just one illustration:

She says they are in the habit, in many of the out-of-the-way places of having a kind of theatrical show to amuse the people. Before the United States put a stop to it, you may recall that they had bull-fights; and the gathering was not considered a success unless one or more men were killed in the fight. Well, these people have a fondness for plays representing scenes from the Bible; and in order to bring a great crowd they have the crucifixion complete, and a real live man is crucified on the cross; and for some reason or other our United States has not put a stop to it. Perhaps it is largely in out-of-the-way places, and intelligent people know little or nothing about it. Soon after this talk, while it was fresh in mind, I received the following letter in regard to the Work of the Anti-saloon League in New Mexico:

Mr. A. I. Root:—We are having campaigns on among the Spanish-speaking people all over the State, and they are in so many ways so helpless, not only financially but also helpless to know what to do and how to do it, and we comparatively few English-speaking people have to do the work among and for them to so large an extent, that were it not for the sacredness of the high interests involved, I doubt whether I could continue to face all these difficulties. But we are not our own, and the cause is that of our great Master, and so we fight on. If Colorado votes dry this fall, we feel very hopeful of carrying New Mexico in January, especially if Arizona also should succeed in voting dry this fall, as both adjoining States have called State-wide elections on prohibition.

I am still receiving your journal, and always look it through, especially your religious department, which naturally interests me most. After perusal I reinsert in the wrapper, put on a stamp, and mail it to Miss Clara D. True, of Espanola, N. M., who keeps bees, and is also a good friend of our cause, and who might be interested in some of your supplies.

J. I. SEDER, State Superintendent.

Albuquerque, N. M., May 19.

I am hoping and praying, not only for the success of the temperance work in the out-of-the-way places belonging to the United States, but that our different denominations in their zeal for spreading the gospel will remember the urgent need, *right here* in our own country.

Convention Notices

A summer meeting of the New Jersey Beekeepers' Association, July 8, will be held at the apiary of Robert Spicer, Wharton, Morris Co., N. J., reached by D. L. & W. R. R., and C. of N. J. An interesting program is being prepared.

New Egypt, N. J., May 19. E. G. CARE, Sec.

IOWA SUMMER MEETINGS.

At Des Moines, July 15, a big day is planned at the Dustman apiary, which is convenient to the car line. The committee is planning a series of interesting demonstrations. The central location and splendid railroad facilities from all directions make Des Moines very easy of access.

At Mr. Pleasant, July 28, is to be held the fifth field meet of the season. The committee is already making plans for the program with C. P. Dadant, of Illinois, as one of the speakers. Beekeepers from Western Illinois and Northeast Missouri will find Mt. Pleasant easy to reach, and should plan to come.

On August 12, at Clarinda, the friends from Nebraska and Missouri will find a point easy of access, and the Strong apiary will be the place of meeting. Mr. Strong, the well-known queen-breeder, has been keeping bees for almost half a century, and will demonstrate his methods of queen-rearing. The program will be announced later.

For several years the beekeepers in the vicinity of Sioux City have held a tri-state meeting, the date of which this year is set for Aug. 20. Friends from South Dakota and Nebraska meet with Iowa beekeepers for an annual picnic at Riverside, and the committee in charge always plan an interesting time.

The meeting at Delmar, Iowa, will be held July 7 at the Coverdale farm. Mr. Coverdale has become famous as a grower of sweet clover, and is considered by many of the agricultural papers as authority on the subject. He will have experimental plots showing what sweet clover will do when handled scientifically. Mr. Coverdale will deliver an address, explaining what sweet clover will do for the farmer and stock-raiser. Any one contemplating sowing sweet clover can well afford to make a trip across the State to hear Mr. Coverdale and see his experimental plots as well as his large acreage.

Mr. C. P. Dadant, of Hamilton, Ill., is too well known to need an introduction. He will deliver an address that will be of much interest. Mr. Dadant has been left to choose his own subject. Being a very keen, well-educated man, you may rest assured he will have something to say. Every beekeeper of any consequence has heard of "Dadant." It is a household word. Who hasn't heard of "Dadant's foundation"? Every beekeeper who is within reasonable distance should not fail to hear Mr. Dadant. It will be time well spent.

Mr. Frank C. Pellet, Iowa's State Bee Inspector, will also speak on foul-brood conditions in Iowa, foul-brood laws, etc. Mr. Pellet is also president of our State association, and a live wire. He is also a lecturer of some note. Mr. Pellet isn't very large, but you will know that he is at the meeting all right. Don't forget the basket dinner. Other subjects will be well worth your time and money to attend. Let everybody come, whether a beekeeper or not, and let

every beekeeper in the northeast quarter boost for the Delmar meeting.

Center Junction, Iowa W. S. PANGBURN.

KIND WORDS.

A KIND WORD FOR "STARVING AMERICA," ETC.

I am no enthusiast over a new thing, and don't "go off half cocked," but \$100 would not buy the knowledge I got out of "Starving America" if I could not replace it. It is an awful pity that a man capable of doing so much good as Dr. Wiley can should be turned down by the American people, or should be allowed to be driven out of office where he could do so much good. I am no socialist, but something should be done by the ordinary people to get what belongs to them.

C. A. STEVENS.
Montreal, Que., Can., Feb. 27.

A KIND WORD FROM TEXAS.

I am 72 years of age, and have been reading GLEANINGS about 50 years. Bees are doing well here this spring, and we expect a heavy honey crop. I have the dashaens. They are now up, and growing nicely. I enjoy Mr. Root's Home, Intensive Gardening, and Poultry Department.

Huntville, Texas, May 7. E. T. JOSSEY.

[Thanks for your kind words, my good friend; but as GLEANINGS has been published for only 42 years we shall have to take what you say as along the line of "coming events cast their shadows before." But perhaps you refer to my writings in the American Bee Journal for several years before our own journal was started.]



FINE YELLOW

GUARANTEED ITALIAN QUEENS

only \$1; 3-fr. nuclei with fine queen, \$2.75;
full stand with fine yellow queen, \$3.50.

J. L. FAJEN, STOVER, MISSOURI

FAMOUS QUEENS DIRECT FROM ITALY!

Bees more beautiful, more generous, more industrious; the best honey-gatherers. PRIZES: VI Swiss Agricultural Exposition, Bern, 1895; Swiss National Exposition, Geneva, 1896; Beekeeping Exhibition, Liege, Belgium, 1896; Beekeeping Exhibition, Frankfort, O. M. Germany, 1897; Convention of the German, Austrian, and Hungarian Beekeepers, Vienna, 1897; Universal Exposition, St. Louis, Mo., U. S. A., 1904; the HIGHEST AWARD, Extra breeding queens, \$3.00; Selected, \$2.00; Fertilized, \$1.50; lower prices per dozen or for more queens. Safe arrival guaranteed. Write.

ANTHONY BIAGGI, P-DEVILLA, near Bellinzona, ITALY

Please in writing mention "Gleaning in Bee Culture."

Queens of MOORE'S STRAIN of ITALIANS

PRODUCE WORKERS

that fill the supers quick
With honey nice and thick.

They have won a world-wide reputation for honey gathering, hardiness, gentleness, etc.

Untested queens, \$1.00; six, \$5.00; 12, \$9.00.

Select untested, \$1.25; six, \$6.00; 12, \$11.00.

Safe arrival and satisfaction guaranteed.

Circular free.

J. P. MOORE,
Queen-breeders
Route 1, Morgan, Ky.

The ABC of Bee Culture

The only cyclopedia on bees, 712 pages, fully illustrated. Every phase of the subject fully treated by experts. Price \$2.00 postpaid; money refunded if unsatisfactory.

THE A. I. ROOT CO., Medina, Ohio.

Honey-Cans

We have made especial efforts this season to supply our patrons with cans and cases of the finest quality, and we have now in our warehouse a complete stock ready for immediate shipment to you.

There is much satisfaction in knowing that there is a dependable source of supply so near to all Texas Beekeepers, and others in the great Southwest. Experience has taught us to anticipate properly the needs of our patrons, and we have as yet failed to fall down at a critical time. Sometimes we feel that it is not wise for Beekeepers to trust entirely to the supply house for eleventh-hour assistance, but we concentrate our energies, nevertheless, on complete preparation, and when you are ready we are. Write us for prices.

Weed's New Process Comb Foundation

We have made extensive improvements in our comb-foundation factory this season at a great expense, and are now operating day and night under the supervision of a man direct from The A. I. Root Company, who has had many years of experience in the manufacture of this product. When placing your order with us you are assured of receiving Comb Foundation of unexcelled quality.

Sell Us Your Honey and Beeswax

We desire as usual to buy all the first-class white honey we can obtain. We are now paying for bulk comb honey of the above grade, properly put up f. o. b. the beekeeper's railroad shipping point:

2 Sixties	9c per lb.	10 Twelves	9½c per lb.
10 Sixes	10c per lb.	20 Threes	10½c per lb.

Prices subject to change without notice.

A full line of Root's Beekeepers' Supplies on hand at all times ready for immediate shipment.

Toepperwein & Mayfield
Nolan and Cherry Sts. San Antonio, Texas

A LAKE TRIP FOR REST AND RECREATION

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How can I tell a queen-cell from all the rest?

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What must be planted for bees to work upon?

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